City of Troy, NY

-Draft-

Solid Waste Management Plan

2019 – 2028

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Appendix

Executive Summary

City of Troy Solid Waste Management Plan – 2019-2028

This Solid Waste Management Plan (SWMP) 2019-2028 is being submitted pursuant to Troy City Code Chapter 247-8 [G] (See Appendix 12). Passed in 2017, the code change calls for the development and approval of a "Comprehensive Solid Waste Plan" by December 31, 2018. New York Department of Environmental Conservation (NYSDEC) has guidelines and requirements for municipalities with regards to solid waste planning.[1] NYSDEC uses the terminology Local Solid Waste Management Plan (LSWMP) to describe plans that guide municipal solid waste practices in accordance with State Law. NYSDEC LSWMPs encompass a decade-long planning period. This document adheres to that guideline with a ten year plan for future solid waste activities. NYSDEC has articulated guidelines for planning units on ten year solid waste management practices. These guidelines were followed, within limitations, for this plan. This plan covers the solid waste management period from January 1, 2019 through December 31, 2028. The jurisdiction of this plan is restricted to the City of Troy, New York. This SWMP is being developed in support of the City's ongoing efforts to provide economically- and environmentally-sustainable solid waste services to the city's residents, businesses and organizations in the near and long term. The City will submit this plan in place of a Comprehensive Recycling Analysis (CRA) to NYSDEC in order to become compliant with state law. The plan additionally finds that if the City becomes part of a regional entity, in adherence to NYSDEC recommendations, solid waste management will become easier. In a regional entity planning and management will be in accordance with NYS Law. The residents, businesses, industries and institutions in the City of Troy produce thousands of tons of solid waste annually. The question of how to reduce waste generation and increase reuse and recycling gives rise to the need for a plan such as this one.

The purpose of this plan is to 1) serve as a citywide framework for the coordination of solid waste management; 2) establish solid waste goals and methods for monitoring the progress towards these goals; and 3) satisfy both the NYSDEC legal requirements for a municipality with regards to solid waste planning and comprehensive recycling analysis and the recently-approved City of Troy requirement to develop and implement a "Comprehensive Solid Waste Plan" before the end of 2018.

Current Solid Waste Programs

The City's current solid waste program operates out of the Department of Public Works Garage in Troy's North Central neighborhood with a secondary location for material management at "The Alamo" facility located adjacent to the Rensselaer County Jail in South Troy. The City uses The Alamo site as an adjunct to handle its solid waste stream, excluding municipal solid waste (MSW) or single stream recycling (SSR). All MSW and SSR is collected by the City and brought directly to a transfer station located

[1] 6 NYCRR Part 366

off Route 4/Burden Avenue in South Troy, leased and operated by County Waste. All non-SSR recyclable materials are brought to “The Alamo” by the City, including found electronic waste, found household hazardous waste (HHW), yard waste, scrap metal, and bulk material. The City hosts a free annual collection event – which accepts HHW, Electronic Waste and confidential paper shredding – at “The Alamo” for a limited number of residents.

This plan also highlights the need for the City to acknowledge and address the significant & ongoing changes in international recycling markets. Shifts within the industry are effecting communities not only in the Capital District, but across the northeast region and nationwide. It is important to understand that these changes are new and unforeseen. Municipalities will be forced to completely overhaul their solid waste master plans in response. The City of Troy is well-positioned to prepare for these changes. Development of the City’s SWMP during this period of market upheaval puts our community one step ahead of other municipalities in the state.

During the period in which this plan was being developed, the single stream recycling (SSR) system began encountering significant market limitations. Long-established overseas markets for recyclable materials have either become severely limited or no longer available due to recently-enacted stricter contamination standards. Each municipality is experiencing the trickle-down effect of these market changes in different ways. Although the City of Troy currently appears to be insulated from a dramatic elimination of recycling or cost increases it does not mean they could not occur in the future. These changes will impact every municipality, but each community will be affected differently. The City’s Solid Waste Advisory Board utilized the changes within the global recycling market as an opportunity to make positive recommendations that account for the drastic changes that occurred in 2018 and establish a stronger municipal solid waste management system for the future.

Goals and Objectives – LSWMP – 2019-2028

In 2017, in accordance with previous recommendations, including the Citizens Advisory Group “Municipal Composting in Troy” (2012) report and the “Improving Troy’s Solid Waste Management Program” (2000) report by the Green City Project – a joint undertaking of the Green Education and Legal Fund, Inc., and the Ecological Economics, Values and Policy Program Department of Science and Technology Studies at Rensselaer Polytechnic Institute – the City of Troy approved the implementation of a solid waste management fee. The legislation removed the cost of solid waste from the general tax bill and established a separate fee to cover the costs of municipal waste collection services. Funding the cost of this service outside of the general taxes is recommended in the 2000 and 2012 reports to the City, by the US EPA and NYSDEC, and serves as a stepping stone towards the recommendation of a pay-as-you throw system (PAYT) of municipal solid waste management.

Concurrently, the updated law requires the City to develop a Solid Waste Master Plan prior to the end of 2018. This plan will serve to guide the City in their efforts to increase

recycling, decrease waste output, and to manage costs incurred by the municipality. The City utilized established NYSDEC guidelines which assist municipalities in developing waste management plans. Although the requirements established under the recently-enacted local law requires the City to finish and implement the plan before the end of 2018 does not allow enough time to complete all state requirements, the plan provides a guide that can be used to achieve compliance successfully in the short- and long-term. NYSDEC calls for bi-annual updates on the plan – with the first update scheduled for 2020 – at which time any items NYSDEC deems necessary for inclusion will be updated.

With the publication of "Beyond Waste – A Sustainable Materials Management Strategy for New York State"[2], New York State renewed its commitment to work aggressively to reduce the amount of waste destined for disposal. This publication marked a change in guidance from NYSDEC, as they put it "…a shift from focusing on 'end-of-pipe' waste management techniques to looking 'upstream' and more comprehensively at how materials that would otherwise become waste can be more sustainability managed through the state's economy". The City of Troy's SWMP takes this state-issued guidance into account and looks to establish many upstream fixes and improvements while also accounting for any downstream backup.

By taking into account the immediate needs of the City of Troy through a comprehensive solid waste guide combined with New York State's "Beyond Waste" approach and the updated NYSDEC guidelines on writing LSWMPs, the City has identified seven objectives in this plan (an implementation strategy to achieve these objectives is outlined in Section 6). The objectives line up with the City's goals for waste reduction, reuse and recycling and creation of a financially and environmentally sustainable solid waste management strategy. They are as follows:

Objective 1: Establish a Recycling Center

The City should utilize current assets and facilities to create a recycling drop-off center that is open to the public that allows material to be sorted into a variety of reuse and recycling options.

Objective 2: Operate a Mulch and Compost Facility

The City should create a composting program to process food waste internally within NYSDEC registration volumes. The purpose of this facility will be to handle all yard waste generated by the City and a portion of the municipality's organic waste.

Objective 3: Develop a plan for a Re-Use Center

[2] Beyond Waste: A Sustainable Materials Management Strategy for New York State New York Department of Environmental Conservation, December, 2010, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

The City should explore options for establishing a re-use center in Troy, and should partner with existing organizations to temporarily increase reuse options prior to further exploration of establishing full scale re-use center.

Objective 4: Establish Clear Waste Collection Procedures & Increase Collection Participation

The City should enact incentive-based pricing and update the City Code to reflect actual disposal costs to the City. These changes will provide a clear process for how each type of material can be reused, recycled or disposed of. Violations should be structured to incentivize compliance from chronic violators. The City should establish a separate sanitation budget fund that is funded through a PAYT disposal system to clarify and properly allocate the expenses of waste costs, ensure the sanitation bureau is properly funded and create a fair pricing structure.

Objective 5: Increase Education and Outreach

The City should maintain the recycling coordinator position to ensure continued compliance with state and local regulations, and increase education opportunities and promote public outreach in regards to solid waste and recycling. The City should create an online clearinghouse, updated regularly, of all recycling and reuse services available to the community. The City should offer additional public recycling and reuse events for the community in order to increase proper disposal and education opportunities.

Objective 6: Increase Accurate Data Collection and Reporting

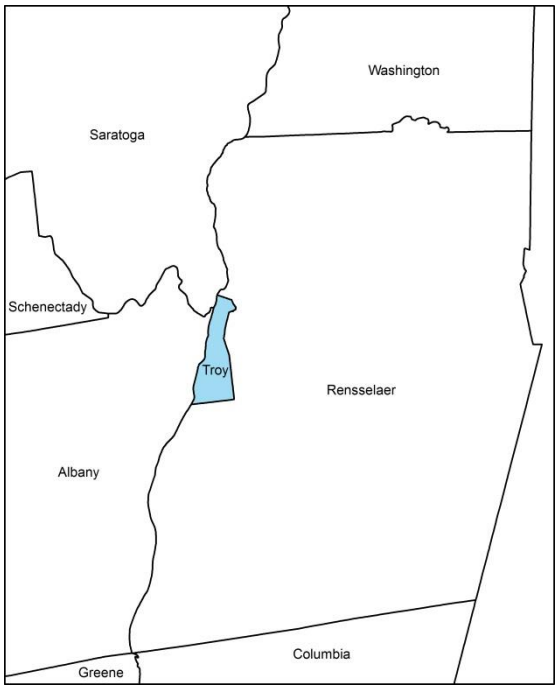
The City should adjust hauler-permit laws to collect more data about the waste generated in the City. This data will help populate annual waste reports and identify trends within the City's municipal solid waste and recycling stream, useful information which can be utilized to improve collection services and development of future policies and procedures. In addition, the City should establish a permanent Solid Waste Advisory Committee to advise the City on use of data and reports to implement this plan and assist in NYSDEC bi-annual updates and development of the next SWMP in 2029.

Objective 7: Create Deconstruction Permitting and Education

The City should create a permit outlining deconstruction options. The program should structure permit costs to incentivize deconstruction instead of demolition. The City should also increase home & property owner education about deconstruction versus demolition.

These objectives are set forth to make the public aware of the City's solid waste options and costs in order to reduce solid waste at the source, enhance reuse and recycling of materials generated by the City, and establish groundwork for the City's next LSWMP. While some of these objectives are ambitious, each will be financially and environmentally sustainable for the City of Troy in the short- and long-term.

Section 1 – Description of Municipality

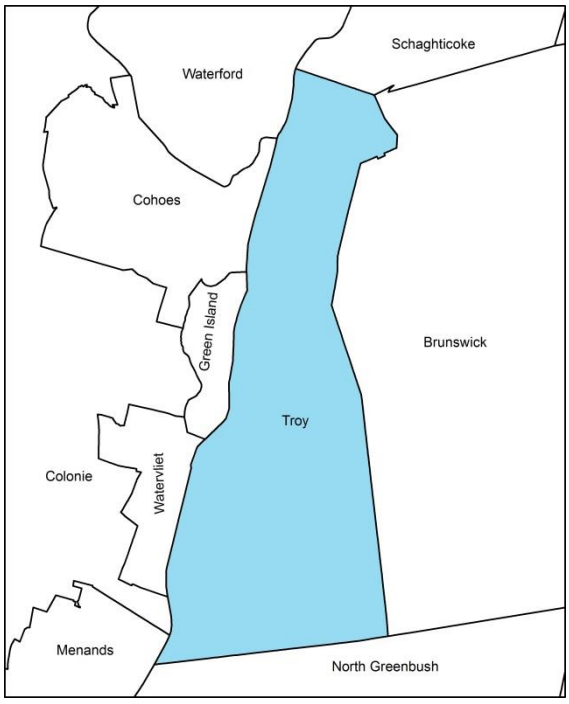


1.1 Size and Geographic Location

The City of Troy is a small municipality located in the Capital Region of Upstate New York State. It is approximately 11 square miles. Troy is the largest city located within Rensselaer County by size and population. The Hudson River marks the Western boundary of the City. Route 7 (Hoosick Street), which bisects Troy from East to West, is the main route into Vermont and New Hampshire for most of New York State and is the entrance to Vermont for the Southern and Western United States.

1.2 Population

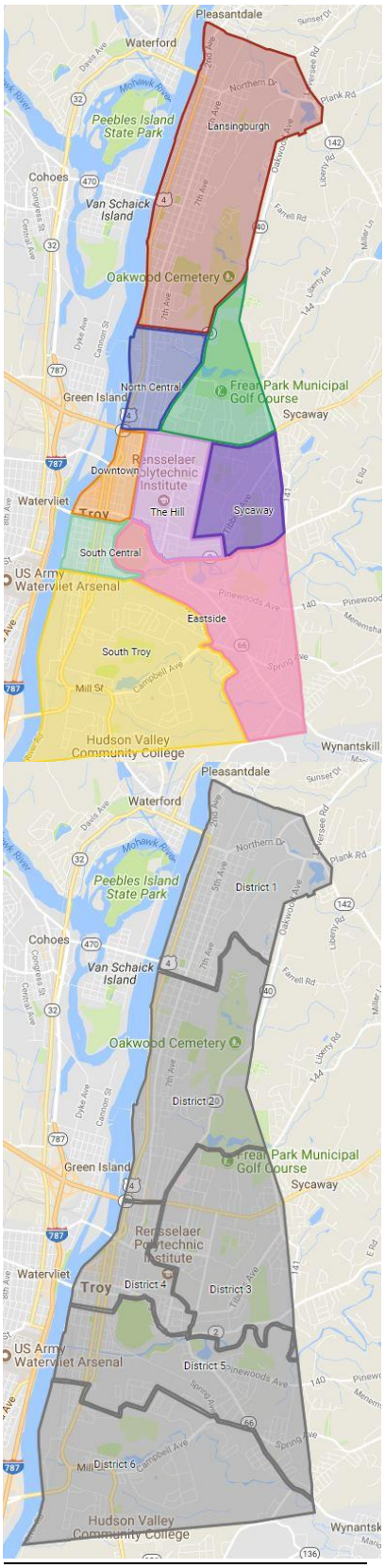
The US Census Bureau 2010 population for the City of Troy is 50,129. This is an increase of 1.83% from the 2000 census which put the population at 49,229. The Owner-Occupied Housing unit rate from 2012-2016 was 37.6%, implying a high number of renters. The City's median income in 2016 dollars from 2012-2016 was $39,847 and the people in poverty percentage was 25.5%.[1]



1.3 Neighboring Municipalities

The City of Troy is located near several municipalities including: the City of Albany, Town of Colonie, City of Schenectady, City of Saratoga Springs and City of Pittsfield, MA. The immediate neighboring municipalities on the Western bank of the Hudson River include: the Village of Waterford, City of Cohoes, Village of Green Island, City of Watervliet and the Village of Menands, listed from North to South. The immediate neighboring municipalities to the East include: the Town of Schaghticoke, Town of Brunswick, Village of Wynantskill, and the Town of North Greenbush, from North to South.

[1]U.S. Census Bureau, *Quick Facts Troy New York, 2017, Retrieved from* https://www.census.gov/quickfacts/fact/table/troycitynewyork/PST045217



1.4 CITY NEIGHBORHOOD

The City of Troy is divided into nine major neighborhoods. There are several smaller neighborhoods located within these larger divisions. However, the nine provide a clean geographic outline of Troy for solid waste management purposes. These neighborhoods do not follow the political voting districts of the City, of which there are six. The neighborhoods are listed from north to south as follows: Lansingburgh, Frear Park, North Central, Downtown, Hillside, Sycaway, South Central, Eastside and South Troy. Each neighborhood has its own unique identity, coupled with nuanced differences and problems related to the delivery of solid waste and recycling services. Troy is broken up into solid waste collection zones, each having its own day of the week for service. These collection zones do not follow the neighborhood boundaries. There is no current public map of these collection zones.

The City does not have any data on the breakdown of waste generated by individual neighborhoods or data from private haulers. Only citywide data on material collected by the City's municipal collection is available at this time. Data limitations are discussed at length in Section 2. [2]

1.5 INSTITUTIONS OF NOTE

The City of Troy has many prominent organizations, for-profit businesses, non-profit businesses and institutions. The institutions that most contribute to the waste stream are Rensselaer Polytechnic Institute, Russell Sage College, Hudson Valley Community College, Samaritan Hospital, and St. Mary's Hospital. All of these institutions privately manage their own solid waste. The City has no collected data from these institutions related to their solid waste management or disposal processes.

The City has three major parks, two memorial parks and 18 neighborhood parks. Of the three major parks one is a municipal golf course operated by the City.

[2] Map of Troy Neighborhoods and Troy City Council Districts were created using Google My Maps by reddit.com/r/troy

The City also boasts a year round farmers market that is the largest in the region. The Farmers market is run autonomously from the City. The farmers market attracts upwards of 14,000 customers to the City each Saturday. The City, in partnership with local organizations such as the Downtown Troy Business Improvement District, hosts many events throughout the year. Each of these draws thousands of people into the City which creates additional waste management challenges.

1.6 SEASONAL VARIATIONS

The City of Troy has a vibrant and growing Downtown area with a central business district (CBD). It features a diverse group of businesses, restaurants, bars & breweries, art galleries, retail shops and more. These create a concentrated and unique waste stream in the downtown, which is complicated by the historic nature of the buildings and age of streets. As a result, the City provides regular pickups in the CBD Monday through Friday, 5 days per week. The downtown waste stream fluctuates throughout the year due to external factors.

The largest impact on the City's seasonal waste stream variation is the education institutions located in Troy. The three higher education institutions – Rensselaer Polytechnic Institute (RPI), Hudson Valley Community College (HVCC), and Sage College – have a collective student body of over 20,000 people. A little more than half of these students belong to HVCC. Although the college is expanding its student residential options, most of their students are commuters. These commuter students do not impact the waste stream as directly as RPI and Sage students.

All three schools operate on similar annual schedules. Most students arrive before the first of September and leave after school ends at the end of May. The semester schedule has resulted in a large number of apartments located within Troy to have either June 1 or July 1 start dates, subsequently creating May 31 or June 31 move out dates. Because large numbers of students move out during a similar time period a significant volume of accumulated materials is deposited into the waste stream. Since 2012, the City's highest disposal volumes of municipal solid waste occur in May and June. The spike is attributed to the departing students and to the semester's effect on yearly lease agreements.

In the spring, the City sees a large influx of brush material from winter cleanup. In late fall, a similar influx is seen but from fallen leaves and yard cleanup. It is these two seasons that contribute the largest amount of yard waste at the City's collection pile.

1.7 ANTICIPATED CHANGES

Troy has experienced a recent increase in residential and commercial investment. There are a number of residential and mixed use development projects near completion, underway and in planning phases. These types of projects are expected to increase the waste streams in their respective neighborhoods.

Currently these developments are concentrated in the Downtown central business district. Additional development projects are slated in South Central and North Central. The exact impact of these developments on the waste stream or the population is not known at this time.

Section 2 – Waste Generation and Materials Recovery Data

2.1 DESCRIPTION OF CURRENT WASTE STREAM

The City of Troy currently utilizes a private transfer station in South Troy as the primary waste disposal site. The transfer station, its history, and current collection methods are elaborated on in Section 3. Since it opened all waste stream data records are provided to the City in monthly statements issued by the transfer station. The transfer station accepts three streams of material: Single Stream Recycling (SSR), Construction and Demolition debris (C&D), and Municipal Solid Waste (MSW). The transfer station currently provides the City with monthly totals for each type of material. Yard Waste, Scrap Metal, and Bulk Waste are collected by the City and consolidated at the Alamo facility. There is currently no truck scale at the Alamo; so waste is measured it is removed from the site (the Alamo site is expanded upon in section 3.1.3). Table 2.1 provides total tonnage by material from the transfer station from 2014 – 2017. Tires, Yard Waste and Electronic Waste data was available from their respective haulers from 2017 only. Scrap Metal data was available through 2014. Graphs portraying 2018 MSW data compared to each subsequent year of available data are shown in Appendix 3 through 8. A graph portraying SSR tonnage by month from 2018 through 2015 is shown in Appendix 9.

Troy has not maintained a complete and accurate measure of its recycling rate, but can conservatively estimate a single stream recycling rate between 6-7% for the last 4 years. This rate does not include all diverted material. 2017, is the only year where data is available for other diverted material. In 2017 the recycling rate is 9%. Closer monitoring of materials will yield more data related to solid waste, moving towards achieving the objective of accurate data collection and reporting.

Table 2.1 - Waste Stream Breakdown (in tons)

	2017	**2016**	**2015**	**2014**
MSW	15,352.3	15,238.7	15,892.4	16,029.5
SSR	1,170.6	1,163.9	1,243.8	1,342.0
Scrap Metal	40.4	45.3	7.9	6.1
C&D + Bulk	1,791.9	1,766.4	1,243.8	3,326.0
Tires	1.0	N/A	N/A	N/A
Yard Waste	*500.0*	N/A	N/A	N/A
E-Waste	19.0	N/A	N/A	N/A
Total	**18,875.1**	**18,214.3**	**18,387.8**	**20,703.5**

2.2 Analysis and Projections of Waste Stream

This plan articulates the necessary first step for the City to collect and compile the waste stream data. Analysis of this data is limited due to lack of available data. Despite this, there are some observations that can be made. 2016 was the lightest year on record from 2012 to 2017. Quarter 1 2018 MSW tonnage was average per month. Following the deadline for payment of the first installment of the solid waste management fee in April, 2018 MSW tonnage appears to be trending below historical averages. It is expected that MSW will continue to decrease as both recycling and reuse options are expanded and education and outreach options are increased. See Appendix 3 through 8 for graphs comparing 2018 to 2012 through 2017 to the average tonnage of 2012-2017 by month.

NYDEC provides a calculator to project waste and recycling information over the course of the planning period (2019-2028). This calculator takes current waste data and population data to project this information. Due to current data limitations the calculator does not correctly analyze the City's waste stream or project it over the next decade. Once correct data is gathered, these calculators and the projections will be updated and included in the plan.

2.3 Data Limitations

The City only has data available from the City collection services, with none available from private collection services. Due to this limitation the solid waste history of the City is not comprehensive. The City has many large waste generators that are not captured currently. This can be remedied by altering the hauler permit code and making regular data requests. To achieve this goal, City recommendations for hauler code changes are made in Section 5.

The City has never requested data from large waste generators located within the City, like RPI or St. Mary's Hospital, so reporting is incomplete in this area. By streamlining these requests the data gaps will begin to fill in, beginning with large institutions and expanding to smaller ones. Implementing these changes will ensure all necessary data gaps are filled prior to the 2028 plan, completing this plans objective to increase accurate data.

The City does not have any data on the breakdown of waste generated by individual neighborhoods or data from private haulers. Only citywide data on material collected by the City's municipal collection is available. The lack of location data creates difficulties in fixing solid waste issues specific to neighborhoods. Comprehensive reporting on an annual basis must precede new data objectives. During the 2019-2028 planning period, waste reporting will be streamlined and available for the next plan in 2029. The collection of data is a critical first step in lessening the financial burden of waste management on the taxpayers.

Section 3 – Existing Solid Waste Management System

3.1 FACILITIES / HISTORY

The City of Troy has not had a public Solid Waste Management Plan since the closure of the landfill. Without regular updates on the Solid Waste Management policy and changes to the policy by the City, the public lacks a clear understanding of its municipal collection services. This lack of clarity over time has contributed to confusion and frustration surrounding Troy's solid waste management practices. This plan attempts to lay out the current and historical solid waste practices of the City and then proceeds to make recommendations for change that will have positive, clear outcomes. One of the objectives of this plan is to create a clear understanding of solid waste processes so that the public can easily participate in the system. The plan will also bring the City into compliance with NYS laws pertaining to municipal solid waste planning.[3]

3.1.1 Landfill and Recycling Fee - 1968-1995

The City of Troy's modern solid waste history begins with the City of Troy Landfill located off Sherman Avenue in the Eastside Neighborhood on the former Troy airport site. Opening in 1969, the landfill operated without any State oversight or involvement. Concurrently, the City launched a municipal collection service, moving away from utilizing a private collection company.

The Landfill site is approximately 95 acres. At the time of its opening in the late 1960's it was assumed that this site would provide unlimited waste disposal capacity. For most of the landfill's lifetime it maintained a tip fee of over $100 per ton. By comparison, the current 2018 average price per ton in the Capital Region is $65. The revenue from the landfill's tip fees completely funded the municipal waste collection services throughout the landfill's lifetime and was an economic benefit to the City. However, it was later seen to present an environmental hazard that impacted the surrounding area.

By the late 1980's the New York State Department of Environmental Conservation and the City were in constant disagreement over proper landfill management. Despite the City's unwillingness or inability to properly manage the landfill according to then-current state regulations, the pressure applied by NYDEC and, ultimately, the involvement of the State Attorney General's office forced the City to close the landfill in 1992. As part of this landfill closure an interim transfer station was constructed and operated from 1993 through November of 1995. Despite attempts to keep the landfill and the transfer station open, NYSDEC became reluctant to support the City in these efforts, and forced them to manage the transition without assistance from New York State.

[3] 6 NYSCRR Part 366

To help with the financial loss of the landfill, Troy reduced the tip fee at the landfill the year before the closure down to $55 per ton from $110 per ton to maximize revenue. An article from the Time Union in 1992 outlines this change in tip fee and reactions from the community at that time (*Come one, come all* Times Union 1992, Appendix 10). The closure of the landfill was perhaps the biggest event affecting the City's solid waste programs in its history. The loan that was required to be taken at the time to close and cap the landfill is still being paid today as part of the MAC debt.

In 1988 the state legislature approved the NYS Solid Waste Management Act which required that every municipality in the state have a mandatory source separation ordinance or local law in place by September 1, 1992. The City of Troy complied with this mandate in August of 1992. (Appendix 11: Troy City Code, Chapter 234: Recycling)

In 1992 the City was inclined to privatize the municipal solid waste system. A stepping stone towards this was to comply with the State and now local recycling mandate and offer a private recycling collection service. Since the landfill tip fee revenue was coming to a close Troy opted to pay for this new private recycling service through a fee. This was the first time in which the residents received a bill for any solid waste services.

As for municipal solid waste the closure of the temporary transfer station in 1995, forced the City to seek other disposal options. The City began bringing all waste material to the Town of Colonie landfill. This process continued for over ten years until the private transfer station opened in 2009. All of the City's MSW collected by the municipal collection now goes to this transfer station in South Troy.

3.1.2 Transfer Station

The transfer station in South Troy is located at 83 Water St. on a property owned by the Troy Local Development Corporation (TLDC). The Property is leased to County Waste, a division of Waste Connections Inc., the third largest solid waste services company in the United States. The TLDC's lease allowed County Waste to build out the building to operate as a transfer station, as long as it remains in compliance with NYSDEC. The City's benefit from the site is consistent access to waste disposal at a fixed rate. The City operates as a "designee" of the TLDC under the lease. According to the lease, the price is the same tip fee for both C&D and MSW ($60 per ton) and a zero dollar tip fee for SSR. The transfer station is open Monday through Friday 7:30am until 4:45pm and Saturday 7:00am until 12:45pm. The transfer station is open to both the general public and to the City for disposal.

The transfer station has an up to date permit with NYSDEC that it maintains. Copies of the permit are sent regularly to the City upon renewal. The facility is permitted to take MSW, SSR and C&D material. It is not permitted to take electronic waste (e-waste), household hazardous waste or yard waste. The transfer station is

permitted to accept a rolling average of 400 tons per day over 30 days with a maximum daily tonnage of 580 tons on any given day. The City generates an average of 60 tons per weekday according to a 5 year average. This keeps the City at only 15% of the transfer stations rolling capacity. The City utilizes the Alamo site to handle its yard waste, e-Waste, HHW collection events, scrap metal and bulk collection.

3.1.3 The Alamo

The City has utilized the Alamo site for almost two decades. The City does not pay the TLDC to use the Alamo site. The City has expanded usage options and availability of the Alamo over the years. The City began using the Alamo for yard waste exclusively. Scrap metal, tire storage, HHW Collection events and eventually bulk collection were also added at this site. Bulk collection at the Alamo is limited to drop off from smaller City vehicles; it is not protocol for grapple trucks to offload bulk waste at the Alamo. Due to financial and staffing limitations, the Alamo has not been adequately managed in over 3 years, resulting in the build-up of irregular material at the site. This culminated in 2017 when, due to an unfortunate series of events, NYSDEC inspected the Alamo. The inspection resulted in a notice that the site is not appropriately permitted or set up for general public.

This shutdown prohibited access to the Alamo by the general public, but did not impact City operations at the site. NYSDEC felt the risk of incorrect disposal was too great without a proper management plan and reliable staffing. The Alamo remains operational for internal City uses due to a municipal exemption.[4] The Alamo can be reopened to the public following the filing of a site management plan with the NYSDEC that outlines 1) the type of material accepted, 2) how it is stored and the pertinent site registrations, 3) permits or exemptions related to each type of material. Additionally, NYSDEC requires the site be staffed during periods of public access of the site for disposal services.

[4] 6 NYCRR Part 360.14 (b) (1)

3.2 TROY COLLECTION PROGRAMS

3.2.1 MSW Collection

The City of Troy's Municipal Solid Waste (MSW) collection services have been offered since the landfill opened. The closure of the landfill in 1992 saw an overhaul of municipal collection services due to financial constraints related to loss of landfill tip fee revenue. Since this overhaul, the department has slowly grown from 20 employees in 1993 to 29 in 2017. The addition of recycling collection – which the City started performing in 2001 – accounts for the growth.

As of September 2018, the City has six 20 yard rear loader garbage trucks and one automated side loader (ASL) 20 yard truck. When deployed, the rear loaders have one driver and two laborers while the side loader has only one driver with no laborers. The Sanitation vehicles and equipment are dated. While the City's current Capital Plan calls for new garbage and recycling trucks every other year, this has not historically been the case. This new Capital Plan must be adhered to in order to ease the financial burden of maintaining older equipment, frequent repairs and missed services. A breakdown of the MSW vehicles, including age of the vehicles and yardage capacity is below (Table 3.1).

Table 3.1 – MSW Truck Details

Type	Truck #	Yardage	Truck Year	Age
ASL	10	20	2006	12
Rear Load	4	20	2003	15
Rear Load	5	20	2006	12
Rear Load	7	20	2009	9
Rear Load	9	20	2014	4
Rear Load	11	20	2014	4
Rear Load	13	20	2000	18

MSW is collected in zones throughout the City once per week, outside of the Central Business District in the Downtown Neighborhood where it occurs more frequently. The Central Business District receives street side service two days per week and three days per week in the alley, totaling five days per week of MSW services. The City does not have a public map of collection zones available at this time.

The City requires that MSW be placed in "heavy-duty plastic bags tied at the top or specially treated paper bags" and this material is placed "in water-tight, covered wooden, plastic, or metal containers." (Appendix 12: City Code Chapter 247-9 [a]) These containers must be marked for identification by the owner, either by name or street number. (Appendix 12: City Code Chapter 247-9 [g]) At this time the maximum amount of waste generated per household is limited to "50 pounds in weight or 20 gallons in capacity" (Appendix 12: City Code Chapter 247-9 [b]). Waste containers that are full must be placed at the curb adjacent to the premises or in the alley to the rear of the property no more than 12 hours before collection of

solid waste in residential areas and no more than 10 hours before collection of solid waste in business areas of the City. (Appendix 12: City Code Chapter 247-9[c])

3.2.2 Bulk Collection

Bulk Collection is a municipal service involving collection of waste material too large for garbage trucks. Bulk collection occurs in conjunction with recycling and garbage. Bulk material is collected with a grapple truck and pickup trucks. Sanitation uses 4 grapple trucks, 3 pickup trucks and one larger 1 ton pickup dump truck for bulk collection. The grapple truck is operated by one driver while the pickup trucks are sent out with one driver and one laborer.

Table 3.2 – Bulk and Yard Waste Truck Details

Type	Truck #	Yardage	Truck Year	Age
Grapple	150	20	2014	4
Grapple	154	20	2005	13
Grapple	158	20	2002	16
Grapple	159	20	2001	17
1 Ton Dump	63	3	2009	9
Pick up	23	1	2008	10
Pick up	39	1	2009	9
Pick up	59	1	2008	10

According to City Code (Appendix 13: City Code Chapter 188-19 [A](4){a-d}) every owner-occupied property is allowed to receive free pickup of bulk service annually as long as the amount is less than one pickup truck load. Bulk collection is intended to be performed on demand. The property owner calls the DPW dispatcher and their pickup is scheduled for their next MSW service day. However, due to staffing capacity this is not how it always works. It has been a priority for the City since the mid 1990's to always keep the streets clean. This has allowed for the City to maintain cleaner streets, but has facilitated or encouraged illegal dumping, excess bulk dumping by homeowners and overburdened bulk collection crews. Illegal dumping and missed services due to staffing or equipment breakdowns are the two biggest bulk waste issues the City faces. There is little clarity regarding residential bulk material disposal. In the mid 1990's Troy attempted to enforce a payment system for bulk material. However, after low compliance (40%), high illegal dumping rates and difficulty in differentiating the homes that paid versus those that did not, the program was discontinued. Since then bulk collection has continued with no major overhauls.

After collection, bulk material is transported to the Alamo where it is placed into private roll-off containers. Grapple trucks go directly to the transfer station instead of bringing material to the Alamo. The Alamo containers are picked up

weekly. This material is considered C&D material by the disposal company. Any bulk material brought directly to the transfer station is considered C&D material, not MSW.

3.2.3 Recycling Collection

Recycling collection has been performed by the City since the early 2000s. When the City took over the recycling collection they consolidated all collection days into one. Before this, each household would have three collection days: one for MSW, one for SSR, and one for bulk. By consolidating the collection days down to one per zone it reduced labor and missed services. The City has offered a zero-sort, Single Stream Recycling (SSR) method of collection since County Waste started accepting this material at the transfer station in 2009. Although this method of recycling is much easier for the general public it gives rise to a higher risk of contamination rate due to the lack of handling and inspection usually used in SSR collection. The City has not upgraded its SSR program since 2009 and still utilizes the more labor intensive method of collection. This conveniently maintains inspection opportunities for Troy's sanitation workers to stop contamination at the source.

Table 3.3 – SSR Truck Details

Type	Truck #	Yardage	Truck Year	Age
Curb Hopper	14	20	2001	17
Long Side Loader	16	10	2006	12

Accepted SSR materials are placed "curbside" for municipal collection in blue 14 gallon bins provided by the City. The bins and the service are only provided to property owners who qualify for municipal collection services as outlined in City of Troy Code. These bins dictated by the types of trucks used in SSR collection. Unlike the collection of MSW and bulk services the SSR collection is performed by a driver and a laborer using two different trucks. Both of the trucks used are side loaders, a type of truck with very high sides for loading and no tipping mechanisms. Due to the logistics involved in emptying 14 gallon totes into these trucks, it is currently impractical to increase the size of our recycling containers. A major investment in vehicle upgrades would be needed to accommodate a larger collection container.

Communities across the United States are experiencing uncertainty within the recycling industry due to changes in the international markets in 2018. Although the City is in a relatively good position when it comes to local single stream recycling changes, the City's recycling collection equipment is in need of an overhaul and the outcomes of these international changes are unknown. The international recycling situation is discussed further in Section 5.3.1.

3.2.4 Food Waste/Composting/ Source Separated Organics (SSO)

The City does not currently offer any municipal source separated organics collection. There are, however, community efforts for food waste diversion and collection. There are several community gardens throughout the City that have on site compost piles. The organization or group that organizes each respective garden commonly allows garden participants to utilize the compost pile onsite. Troy Zero Waste, a local community organization, offers a weekly food waste drop off site at the Troy Waterfront Farmers Market every Saturday. This material is hauled by the organization to one of the local community compost piles in Troy. Market vendors and City residents utilize this free service.

In 2012 the City created a Citizens Working Group to research and make recommendations with regard to municipal composting in Troy. This draft report was adopted by the City Council in 2012. The full report is attached to this document. The report made clear recommendations to the City, some of which have been adopted, others have not. The hiring of a Recycling Coordinator and removal of waste costs from the general taxes were the two most recent recommendations adopted.

In 2015 the City began developing an RFP for a pilot food waste collection program for the City of Troy. As the date for issuing the RFP was approaching the City experienced the tragic and untimely death of its Solid Waste Coordinator who was the project lead on the RFP. No further action has been taken.

3.2.5 Yard Waste

Yard waste and tree debris are collected upon request by the City. This service is available to all property owners in the City. City Code currently requires yard waste be placed in brown paper bags or black plastic bags before pickup; tree debris must be bundled and be no more than 5ft in length, 18 inches in diameter and weigh less than 75 lbs. (Appendix 12: City Code Chapter 247-9[b]) The DPW dispatcher compiles a weekly list of call-in requests; depending on available labor the list is collected during the same day as MSW and SSR collection.

Yard waste collection is not currently a reliable service due to lack of available labor during the summer months. In the spring, the City schedules a regular yard waste collection for several weeks. During this time the City will collect yard waste every week on the regular trash and recycling day. The City will occasionally offer this service in the fall.

All collected yard waste is brought to the Alamo and stored in a pile that after one year is approximately 4000 cubic yards. According to NYSDEC, this site is

exempt for registration or permitting because the total material onsite never exceeds 10,000 yards of material annually.[5]

Once per year, the yard waste pile has been ground up to mulch and hauled away. This practice has been ongoing since at least 2011. Initially, ground mulch was kept to give back to residents. However, fewer and fewer residents came to collect and it became a burden to store all the ground material year after year. In recent years, the ground up mulch was found to have been contaminated at the collection source with plastic and metal materials. As a result, the ground material required screening prior to sale. The contaminated material was hauled away by the contractor to be screened off-site.

3.2.6 Construction and Demolition Debris

The City does not currently have a large scale system for construction and demolition collection or recycling. Homeowners are prohibited from placing C&D debris in the streets for bulk pickup. Instead they must rent a private dumpster through a permitting process overseen by Troy's Bureau of Code Enforcement. The County Waste transfer station accepts C&D debris. City-generated C&D debris is removed by contract vendors. Currently these bids do not require recycling. The City pays C&D rates for its bulk collection for the residents, including furniture and white goods (large appliances). There is no available data from outside municipal collection for C&D disposal rates.

3.2.7 Hauler Permits

Hauler Permit recommended changes are in section 5.11. Currently the City does not enforce its laws pertaining to hauler permits. There is no indication that the City has ever enforced these laws. There are two separate laws that require hauler permits, each with different language in regards to process. These are City Code Chapter 234-4 *Permits for Private Haulers* (Appendix 11) and Chapter 247 *Article II: Private Collection* (Appendix 12).

3.2.8 Recycling Laws

Recycling has been mandated in the City since 1992 pursuant to NYSDEC regulations. The service has been provided by the City for its residents since 1993. The history of Troy's recycling law is found in section 3.1.1. In the 2012 Municipal Composting recommendation the advisory group recommended rewriting the City Code to include food waste mandate. The City has not yet adopted a food waste recycling mandate. The State has a food waste landfill ban that would impact large generators that has not been passed as of this documents publication.

3.2.9 Enforcement Methods

[5] 6 NYCRR Part 361-4.2

The City utilizes three entities to report on and enforce its current waste and recycling laws. Two involve City entities - the Bureau of Code Enforcement, and Department of Public Works (DPW) - and the third being City residents. DPW and Code handle the enforcement process, while DPW staff and the public are responsible for reporting code violations. Currently this involves calling in violations to dispatch in order to dispatch a Code Enforcement officer to document the violation. Because DPW staff see and handle the material most frequently they are the primary reporting body.

The most significant violation problems are illegal dumping and bulk violations, because of this the City asks residents to report these types of violations when they see them so they can be handled in a timely manner. Public engagement can curtail problems faster than the City can find and fix them. Public participation is to be encouraged.

Once a violation has been documented, the City collects the items. Fines for violations of Solid Waste management are laid out in City Code (See Appendix 12: Chapter 247-4) “Any person violating any provision of this article shall be guilty of an offense and, upon conviction thereof, shall be punishable by a fine not exceeding $250 or imprisonment not exceeding 15 days, or by both such fine and imprisonment, for each offense. Each day that such violation continues shall constitute a separate violation.” Fines and penalties for violating littering or bulk laws are outlined in City Code Chapter 188: Littering (See Appendix 13).

While Sanitation laborers can refuse recycling bins if the contents do not comply with the published acceptable items. However, these refusals are not communicated to the generator (owner or occupant), who often assumes a missed service has occurred rather than a rejection.

3.2.10 Data Collection

County Waste provides an annual transfer station report which breaks down MSW, C&D and SSR that the City brings to their facility. Unfortunately, this report does not capture any other generators besides the City collection services. This also does not capture source location data from the material collected. Annual waste reports and hauler permit data requests will give the City more data and allow for more effective analysis over time. Additionally, waste information requests from large generators within the City will assist in calculating Citywide recycling rates to include generators beyond residential customers.

County Waste sent the transfer station to the City annually before 2018. In 2018, monthly data from 2012 to 2018 were requested. This data was used to generate all graphs and charts within this plan. Further analysis of historical data will need to be conducted once more information is available. The collection of data is a critical first step in lessening the financial burden of waste management on the

taxpayers. There are more details on Data in Section 2 and recommended changes found in Section 5.10.

Section 4 – Existing Administrative and Financial Structure

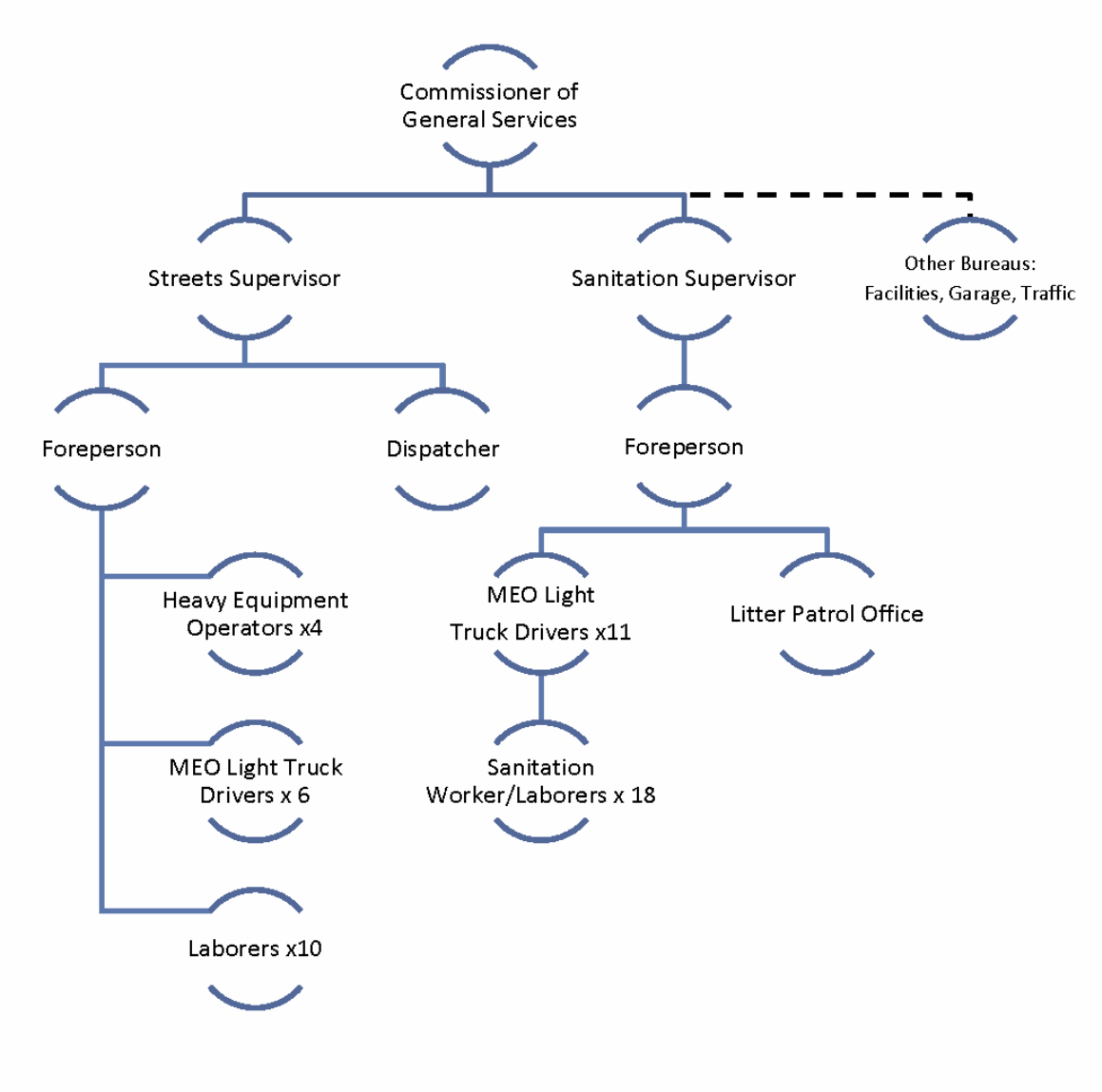
4.1. ORGANIZATION

4.1.1 Department of Public Works

The City of Troy Department of Public Works (DPW) is organized into five bureaus: Central Garage; Facilities Maintenance; Streets; Sanitation; and Traffic. Sanitation and Streets are the two bureaus that handle solid waste, with Sanitation being responsible for primary collection. The following chart outlines the hierarchy of order within these two divisions. The DPW dispatcher handles all calls for DPW; this work includes requests for solid waste pickup, bulk collection, yard waste collection and missed services.

2018 is a restructuring year for Sanitation and Streets. This is triggered by the loss of several employees through retirement and the hiring of a Commissioner of General Services in early 2018. The Litter Patrol Officer is a division of Sanitation position that handles solid waste related code enforcement issues. The position has been unfilled for nearly a decade, but is expected to be filled before the beginning of 2019. The supervisor position was divided into two - Sanitation supervisor and Streets supervisor - with two interchangeable forepersons below them. The Bureau of Sanitation supervisor position is expected to be filled before October 2018. Once fully staffed the new management structure will create better accountability and efficiencies in DPW related to waste services.

Chart 4.1 – Organizational Chart: Bureau of Sanitation, Streets



4.1.2 Finance

The Sanitation department operates on an annual budget of over $3 million dollars. The 2018 Sanitation Bureau budget is located in Appendix 14. This has traditionally been funded through both property taxes and the recycling fee, since the closure of the landfill in 1993 until 2017. In 2017, the City of Troy approved a new law establishing a solid waste management (SWM) fee to fund the Sanitation budget. This separated the cost for solid waste management from local property taxes and eliminated and replaced the recycling fee. The SWM fee was set at $160 per residential unit for 2018. The fee was the same for all generators and was calculated based on the total number of units. The SWM fee was billed as a separate bill entirely from property taxes and utilities. Although perceived as politically divisive at the time of its implementation, this strategy, the removal of waste costs from general taxes in the form of a separate fee is a change that is recommended by NYSDEC, the U.S. Environmental Protection Agency, and in two separate reports issued to the City one by a citizen working group and the other by a research firm and RPI department. Additionally, a SWM fee is utilized by many other cities throughout NYS a table listing their respective fees by unit is below.

Table 4.1 – 2018 Solid Waste Management Fees

Municipality	Single Family	2 Family	3 Family	4 Family	Notes
City of Rochester	$391	$787	$872	n/a*	
City of Plattsburgh	$352	$704	$872	n/a*	
City of Rensselaer	$256	$520	$768	n/a*	SWM fee billed quarterly
City of Schenectady	$224	$448	$672	n/a*	
City of Troy	$160	$318	$477	$636	
City of Albany	$0	$180	$360	$540	
City of Buffalo	$119	$119	$119	n/a*	Hybrid PAYT (annual fee)
City of Utica	$79	$158	$237	n/a*	Hybrid PAYT (annual fee)

**The Cities of Rochester, Plattsburgh, Schenectady, Utica, Buffalo and Rensselaer consider buildings with four or more units as commercial properties and do not provide residential collection services. However, some of these cities offer more expensive options for commercial properties not indicated in the above table.*

From NYSDEC's solid waste management plan 2010 "Beyond Waste…"

> *"6.3.2 (a) Property Tax Most municipalities in New York State fund their solid waste and recycling programs using general revenues derived from property taxes. This system provides no incentive to the resident/taxpayer to reduce or recycle waste because the actual cost of waste disposal is hidden. Moreover, this approach, while simple and straightforward, leads to difficult budget decisions where investments in waste reduction and recycling compete with other critical public services, such as police, fire protection, libraries and schools. Those who waste less essentially subsidize their neighbors who waste more."* [6]

From U.S. EPA Economics of Waste Management and Land Cleanup webpage (Appendix 15):

> *Municipal solid waste (MSW), otherwise known as "garbage" or "trash," consists largely of waste discarded by households, businesses, and institutions. Economic studies focus on determining appropriate policies for MSW management, as well as measuring the negative external effects of MSW disposal, potential siting difficulties, and so on. The collection of MSW can be priced according to two different policies: traditional regulatory instruments (flat fees and local tax receipt-funded collection programs), and market incentives policies. Flat fees and local tax receipt-funded collection programs provide little incentive to reduce waste as the waste generator faces no extra costs in producing more waste each month. Approaches that include economic incentives increase unit costs and monetary rewards for reducing waste generation, and increasing composting and recycling. Examples of incentive structures include volume-based user charges, subsidies for recycling, and product charges that include the eventual costs of disposal. Economic studies that focus on the negative external effects of solid waste disposal have examined host community payments and hedonic pricing effects. Economic analyses are also conducted to better understand the process and justice issues surrounding placement of recycling, composting, and other municipal solid waste facilities.*

From *Municipal Composting in Troy* (See Appendix 1):

> *"It is important for residents to understand their financial stake in the recycling and composting system. Currently, homeowners see no fee for the collection of solid waste, and a $29 yearly fee for recycling collection, while the city spends more than $80 per household per year to dump municipal garbage, and far more to pay for trash pickup and management equipment. These hidden costs result in people not being aware that their actions (failing to separate their waste stream) have real financial implications on*

[6] *Beyond Waste: A Sustainable Materials Management Strategy for New York State*, p.102 6.3.2(a) New York Department of Environmental Conservation, December, 2010, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

> *themselves and their neighbors. The CWG-C recommends, as part of the implementation of a pay-as-you-throw (PAYT) system (and prior to it), the itemization of these costs in a method that makes them more transparent to residents. […] The hidden cost for disposal results in a large percentage of residents believing that garbage collection is free. They are unaware that the cost of trash collection and disposal is included in the property tax. It is difficult for residents to understand the potential economic benefits of recycling without seeing the direct impact on their taxes"*

The 2000 titled "Improving Troy's Solid Waste Management Program" issued by the Green City Project report (see Appendix 2) also recommends moving the cost of waste out of property taxes as discussed here.

> *"In 1999, Troy homeowners each paid $217 for their trash pickup and disposal because they cannot see this charge as a line item on their property tax bills some residents have the misconception that garbage collection is free. Our survey of Troy residents showed that 35% of respondents were unaware that they paid for solid waste services in their property tax bill. There is no incentive to reduce the amount of landfilled waste if there is no promise of reduced cost from diverting materials from the trash. Residents will not understand the economic benefits of recycling unless they are aware of the cost to citizens for garbage collection and disposal."*

The City's SWM fee has a sunset clause for the end of 2018. The SWM fee currently is directed into the general fund, although it is earmarked for costs associated with the Bureau of Sanitation.

4.1.3 Outreach

The City historically has not provided effective outreach to residents when it comes to communicating the rules, regulations, and procedures of its solid waste services. The City's website contains limited information for bulk requests, yard waste pickup, trash and recycling collection schedules, and what can be recycled. Recent efforts have made some progress to allow for improved communication, including the establishment of an Online Services page, as well as significant updates to instructions and content contained on the City's municipal website, but further work is needed.

In April 2018, the City hired a Recycling Coordinator to perform a series of solid waste related tasks including expanded public outreach regarding solid waste and recycling programs. The Recycling Coordinator is also tasked with developing the City's solid waste management plan, coordinating future recycling efforts, assisting in recycling education, ensuring the City's compliance with NYSDEC reporting requirements[7], and collecting recycling data for internal and external reporting. The Coordinator has begun increasing outreach in 2018 by disseminating

[7] 6 NYCRR Part 366

information with Household Hazardous Waste day coupons and now serves as public contact available by phone for any and all recycling and solid waste management related questions. The Coordinator has plans for assisting the City in the implementation of the recommendations within the SWMP in Section 5, including expanding outreach.

4.1.4 Enforcement

As outlined in Section 3.2.9 the enforcement of the City's solid waste laws currently occur. When Sanitation and Streets employees, tasked with removing material, or city residents visually observe violations these violations are communicated to the dispatcher. Documentation of the violation occurs, and then removal of the material occurs together with issuance of the violation by Code Enforcement. The litter patrol officer, the position for which is as yet unfilled, will be in charge of issuing trash violations and ensuring that all instances of violations will be captured by working with Sanitation. A waste violation is documented by a photo evidencing the incident. This is attached to a bill which sets forth the fine and is mailed to the property owner. In the event this is not paid, the total fine is re-levied on the property owner's taxes for the following year. The fines and penalties are outlined in City Code Chapter 188-19 [b-d] (See Appendix 13) shown below:

B. Any person committing an offense of illegal dumping as set forth in § 188-18 shall be guilty of a violation punishable by a fine, imprisonment, or both, for each offense. The fine shall be a minimum fine of $200 for each occurrence, with the maximum fine not to exceed $500 per offense. A sentence of incarceration shall not exceed 15 days per offense.

C. Fine; civil penalty. In addition to the collection of costs associated with the removal or cleanup of garbage, refuse or waste materials found in violation of this chapter by the City, any person violating this chapter shall be punished by a fine in City Court pursuant to Subsection A or B of this section or a civil penalty recovered in accordance with § 188-20 of this chapter in the following amounts:

Violation	Penalty
First	*$100*
Second	*$125*
Third	*$225*
Fourth	*$300*
Fifth	*$350*

D. Fine; civil penalty options. In addition to the penalties imposed in § 188-19 of this chapter, the City Court may order a person to perform one or more of the following:

(1) Perform public service relating to the removal of litter or to the restoration of an area polluted by litter;

(2) Pay the person, or in the case of public property, the City, sustaining damages arising out of a violation of this chapter, plus the injured party's court costs and attorney's fees if action results in a civil proceeding.

4.1.5 Data Collection

Before 2018 data was not collected beyond an annual statement from the transfer station. The Recycling Coordinator position has begun to implement a system of data collection and reporting for the City. The creation of a body of complete and accurate solid waste data will allow Troy to discover and develop efficiencies in the system and increase recycling rates. The collection of data is a critical first step in lessening the financial burden of waste management on the taxpayers.

4.1.6 Advisory Board

The Solid Waste Advisory Board ("the Board") was established by the City in May of 2018 to assist in the writing and development of the Solid Waste Management Plan. The board was created utilizing City Code Chapter 234-8 (See Appendix 11) which reads.

At the discretion of the Mayor, an advisory board shall be appointed to review and work with the City administration on current and future recycling issues and programs. Said advisory board members shall be appointed by, and serve at the pleasure of, the Mayor and shall receive no financial compensation for their work. Advisory board members shall be residents of the City and shall not hold public office within the City administration. The advisory board shall consist of a minimum of five and a maximum of nine members. The advisory board shall have a Chair who shall preside at all meetings. Meetings of the advisory board shall be scheduled by the Chair in conjunction with the Mayor or his/her designated representative.

The Board met frequently from May through August in order to complete this document within the allotted time frame. The Board has provided regular feedback on each section of this document. The operation and input of the entire Board has been essential in the completion of a document of this magnitude. The completion and implementation of this plan and the continued assistance of the Board is an essential component of the City's ability to achieve its objective to increase data collection and fulfill reporting requirements.

4.2 FINANCIAL STRUCTURE

4.2.1 Landfill and The Alamo

The closure of the Landfill in 1992 resulted in the loss of significant revenue to the City in the form of tip fees. The Landfill site now costs the City approximately $15,000 annually in engineering and monitoring costs. The site currently houses a City solar array that results in a net savings of municipal electricity costs.

The Alamo does not cost the City any money in lease expenses. However the site is owned by the TLDC who maintains a loan associated with the site. The Alamo site gives rise to expenses for the City related to the grinding of yard waste, removal of electronic waste, household hazardous waste collection event location, removal of recycled tires, removal of bulk waste and scrap metal. Including all expenses associated with these services, the Alamo costs approximately $100,000 each year. All expenses are related to the disposal material, and this cost comes entirely out of the tip fee budget.

The Alamo generates no revenue from tip fees, and sees modest revenue (approximately $5,000) from scrap metal collection. The Alamo has a Heavy Machine Equipment Operator (HMEO) to maintain the site. This is usually a non-permanent assignment based on staff availability. The individual works from early spring until late fall (April – November). Snowplowing is the most important service of the HMEO in the winter months. Without an HMEO and a loader on site for a period of more than a week the site becomes overburdened and requires a day of cleanup to become reorganized.. The HMEO is included in the Streets bureau budget, this bureau is responsible with keeping streets safe and clear. Streets utilize the Alamo regularly for disposal, in addition to Sanitation.

The transfer station and its equipment, operated by County Waste, is privately owned. The building and land are leased to County Waste by the TLDC. The lease is effective through 2024 with an option for two (2) consecutive five (5) year lease extensions, through 2029 and 2034 respectively. The transfer station guarantees the City can dispose of MSW, SSR and C&D at a fixed price. The City receives a monthly bill encompassing all material disposed of at the transfer station which includes a breakdown of material type into MSW, SSR and C&D.

4.2.2 Funding Methods

The City is responsible for upgrades to waste collection equipment. There is state grant funding available for financial assistance related to recycling and waste reduction. The City has applied for, or is currently in the process of submitting for, the following NYSDEC grant programs:

- Municipal Waste Reduction & Recycling Program – NYDEC provides assistance for projects that further the primary strategy of the NYS solid waste management hierarchy. Troy has a grant application in development for recycling equipment to expand services and increase efficiencies.
- Household Hazardous Waste – A 50% matching reimbursement grant from NYDEC using the Environmental fund to incentivize municipalities to offer disposal options for waste materials that are potentially hazardous in homes.
- Electronic Waste – a 50% matching grant from NYDEC using the Environmental Fund to incentivize municipalities to increase recycling options for Electronic Waste, which is illegal to dispose of in MSW streams.
- Recycling Coordinator – A 50% matching grant from NYDEC to incentivize municipalities to create and keep a recycling coordinator position. These positions increase recycling participation and reduce MSW.

These grants require a 50% local match from the municipality. The latter three programs are annual grants which help offset the cost of HHW collection events, E-Waste Collection and the Recycling Coordinator position. All grant reimbursements go into the fund that the expenses were paid out of.

4.3 Laws, Regulations and Ordinances

4.3.1 City of Troy Code 234 – Recycling and 247 - Solid Waste Code

City of Troy Code Chapter 234 (See Appendix 11) requires recycling in the City. It also mandates that the municipality service all residential buildings that have 6 units or fewer, with all buildings with 7 or more units required to recycle through private collection services. The City's Solid Waste code does not allow commercial units to use City collection methods unless they are grandfathered in by being located in the CBD and currently receive municipal collection services. The City does not offer SSR collection for commercial locations that generate more than the 14 gallon bins the City uses.

City of Troy Code Chapter 247 Solid Waste (See Appendix 12) was updated in 2017. The changes included the creation of the solid waste management fee (SWM). The sunset period for the SWM fee is predicated upon the completion of this SWMP. The remaining changes adjusted the language to be clear with regard to what the City provides with regard to solid waste collection. This included language clarifying what properties receive services from City Code Chapter 247-8 (B):

> *"Garbage, recycling and yard wastes. The collection and disposal of garbage, recycling and yard waste shall be provided to residential premises of six or fewer residential premises and to such other types of premises as the Commissioner determines to be necessary and/or desirable."*

4.3.2 City of Troy Code 188 – Littering

City of Troy Code 188-18 (See Appendix 13) of the Troy City Code which defines what is considered illegal dumping and littering also governs acceptable bulk collection services and pricing for these services. Illegal Dumping is defined in the City of Troy Code as:

> *"All categories of waste material, including but not limited to garbage, rubbish, bulk refuse, construction and demolition material, scrap metal or any similar type of waste material, shall only be placed for collection, either by private or municipal services, at the location from which the waste material was generated. Waste material deposited at a location within the City other than the location/property address from which the waste material was generated shall be considered illegal dumping and shall be subject to all appropriate fees, fines and penalties provide for in this chapter."*

Currently, owner-occupied properties with less than 4 residential units receive free pickup truck loads of bulk material collection. Non owner-occupied residents do not receive free pickups. The current system does not adequately address the problem of illegal dumping. Further the terms of the City Code have not been clearly communicated to the public. Residents who might otherwise wish to comply do not know how to properly use the system in place, which results in frustration and unknowing violations.

4.3.3 Other Laws

The following types of laws relating to solid waste recommended by NYSDEC are not yet established in the City of Troy:

- Green procurement;
- Environmental justice;
- Local product stewardship; and
- Sustainability Initiatives (Solid Waste).

The City created a Joint Task Force on Sustainability in 2014 with City Code Part 53; however, the task force was never convened. The City of Troy is a registered Climate Smart Community accredited by New York State.

Section 5 – Alternatives to Current Solid Waste Management Practices

Section 5 covers recommended adjustments and alternatives to current solid waste management practices. The section is broken out into 15 subsections by NYSDEC recommended topics. Several subsections within Section 5 are dense due to their detail. A brief overview of the more dense subsections is highlighted above the relevant subsection as an aid.

5.1 Waste Reduction Programs

Other recommendations within this Section qualify as waste reduction programs in addition to their respective sections. These items include:

- Enhance the visibility of municipal solid waste costs;
- Expand education and outreach;
- Create of incentive based pricing;
- Expand enforcement programs;
- Establish a recycle center;
- Create a deconstruction permit and food waste composting pilot program.

Each of these items is expanded upon in this Section and is expected to reduce waste in addition to accomplishing their established goals.

5.2 Reuse Programs

5.2 – Recommendations for Implementation by City

- **Explore reuse center options within city limits**
- **Report on reuse center feasibility in city in 2020**

The City of Troy does not currently have a municipal or a public-private option for reusable material donation or disposal within the City. Reuse centers are different from recycling centers because the material is not being broken down and remade into something else, but rather sold as is. There are local restore centers and salvage yards run by local nonprofits and private companies. Troy residents need a more accessible reuse center option in order to prevent reusable materials from entering the waste stream. The amount of bulk waste that residents dispose of annually that could be repurposed or reused is costly, wasteful and abundant. Troy can make a significant reduction to the waste stream through reduced labor from cleaning up large bulk dumping and decreased tip fees. This will lead to a reduced financial and environmental impact on the City. Additionally, this waste stream reduction will give taxpayers access to a secondhand market to give multiple life cycles to usable goods before they become waste.

A reuse center is an opportunity for public-private partnership. The City does not have the financial resources to launch its own at this time but the need for such an enterprise is apparent. The development of a reuse center, coupled with incentive based pricing changes discussed later in this Section, will provide residents a low cost or no cost option for disposal of large usable items. In the event a reuse center can be encouraged or developed it should be given the highest priority by the City to provide a financial, environmental and public benefit. The research and development of a reuse center should be analyzed and prepared for the City in conjunction with the Solid Waste Advisory Board to be presented at the first bi-annual update in 2020. In addition, partnering with established restore centers that take donated goods should be encouraged by the City in order to immediately reduce our waste stream. This could be accomplished through a public-private partnership at the Alamo site.

5.3 RECYCLABLE RECOVERY PROGRAMS

5.3 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **MONITOR INTERNATIONAL RECYCLING CHANGES – BI-ANNUAL REPORTS TO CITY IN 2020 AND 2024**
- **EXPLORE REGIONAL SOLUTIONS TO MANAGING RECYCLABLE MATERIALS**
- **RESEARCH AND REPORT ON A MODERNIZED RECYCLING COLLECTION SYSTEM IN 2020**
- **MONITOR AND EXPAND AS NEEDED TEXTILE RECYCLING PILOT PROGRAM**
- **OPEN THE ALAMO IN 2019 AS A FULL RECYCLING CENTER WITH PROPER STATE APPROVAL**

5.3.1 International Recycling Changes

In January 2018, China, the largest global importer of recycled materials, implemented a .5% contamination rate limit across all imported recyclable material. This unexpected change in material restrictions had a significant and immediate impact on the global market, causing countless tons of recyclable materials to build up on boats, in ports, and in recycling centers worldwide. This backlog of material resulted in buyers having their pick of clean material and leaving contaminated material to stockpile.

Single Stream Recycling (SSR) is a convenient way of collecting recyclable materials without the demands of source separation. It also eliminated the visual inspection of each bin for contamination at its source. This has resulted in a higher average national contamination rate in SSR, compared to other sorted recyclables. SSR is the “dirtiest” type of material and is first to experience backlogs due to decreased demand in international markets. As a result, municipalities invested in SSR programs have or will begin to experience dramatic changes to availability of buyers, as well as significant cost increases to provide SSR services.

The waste and recycling industry in the United States is seeking new solutions to the current market problems. It is likely major industry stakeholders will establish recyclable processing centers nationally for recycled materials in the future. However, there will be a period where other markets must fill in the void left by China. It is during this period that there is the most uncertainty. The duration of this period is unknown, which makes for difficulties in planning. However, the City of Troy is using this period as an opportunity to explore alternatives to the current system with the same interest that was given to SSR. Alternative services like composting, C&D recycling, reuse centers and waste reduction initiatives are given a front seat for consideration and implementation.

Shifts in the global recycling market do not mean that recycling will end. Neither speculation, nor abandonment of recycling systems will benefit the situation. The City of Troy is fortunate and appears to be protected from dramatic pricing impacts of local SSR changes. The City's contract which establishes it as a designee through the TLDC with County Waste, the entity that operates the transfer station, guarantees a zero dollar ($0) tip fee for recyclables through their lease term ending in 2024 with two opportunities for renewal. This gives the City a minimum of 5 years to implement alternatives changes in SSR outlined in this plan and continue to monitor changes in the SSR markets locally, regionally, and nationally.

The City will develop reports in 2020 and 2022, as part of the bi-annual updates, outlining the SSR situation. While the need to modify approaches to recycling will not go away, it is not a problem that the City of Troy faces alone. The City should explore a regional approach to Solid Waste. Aside from the economies of scale to be realized through the consolidation of recycling efforts, areas of New York State that have active regional solid waste authorities or agencies were not as impacted by these international changes.

These recommendations should assist the City minimally through 2024 to achieve its stated objectives. Though the duration of the period of uncertainty in the recycling industry is unknown, the City has ample time monitor, prepare and carefully plan for the situation.

5.3.2 Recovery Programs (Paper, Metal, Glass, Plastic and Textiles) and Recycling Center

The City has provided the collection of recyclables since 2001. The City has two recycling trucks that service residents; both vehicles are over 10 and 15 years old, respectively, and both require significant maintenance and upkeep. With uncertainty in the global recycling market expected to continue, any overhaul of Troy's municipal recycling collection system should be undertaken carefully. Research into a modernization of citywide SSR collection was underway in early 2018. The City will ensure the development of a plan that can be modified to navigate the new- and rapidly-changing markets. A new modernization plan of recycling collection will be researched and reported on in 2020.

A pilot textile recycling program was launched by the City in July 2018. Four containers were placed strategically around the City, in the Eastside, South Troy, Downtown, and Lansingburgh neighborhoods. The program is still in its infancy and no data has been generated yet. However, through education and outreach the expectation is to be able to increase the number of available textile containers. By supplementing the other textile donation programs throughout the local area the City aims to increase awareness and access to the bins for residents. This will have the desired effect of diverting textiles from the waste stream.

The City currently utilizes the Alamo site as an exempt municipal transfer station to handle bulk waste, yard waste, scrap metal, electronic waste and tire recycling. The Alamo was historically open to the public for the disposal of waste and recycled material, but does not currently provide effective site management or proper oversight. The reopening of the Alamo as a recycling center compliant with NYSDEC regulations would be a great benefit to the City's solid waste management program.

The reopening of the Alamo to the public on a regular schedule with a site plan, NYSDEC approval and proper management is a process, but one that can be accomplished before the summer 2019. The major costs to the City would be the purchase of the site from the TLDC. The most recent appraised value was $115,000. This purchase of the Alamo site does not have to occur before the recycling center opens. There will be no new equipment needed for the site and, at present, no major facility updates are required to reopen the site. If the Alamo is opened up to the public, NYSDEC requires that the site will need to be staffed during public hours. The site is currently staffed with a HMEO but not on a regular schedule. It is recommended that the site be reopened to the public with regular staffing by summer 2019 and that the purchase of the site from the TLDC occurs within the next 4 years.

To ensure state compliance, available recycling options on site must be expanded because source separated recycled materials are still considered a commodity, unlike SSR, the city should incur no additional Costs. The diversity of these recycling options will be based upon the 2019 recyclable markets. Minimally, the items to be accepted here will include: sorted paper products, cardboard, glass, plastic, bulk plastic, electronic waste, tires, yard waste, and scrap metal. The benefits of owning this site are shown to be even greater when considering other potential uses outlined in this section.

The City must monitor the SSR markets and maintain the current program with two major updates on a two and four year timeline with an emphasis on maintaining the County Waste lease through another five years beyond 2024. It is recommended to maintain current recycling programs including electronic waste, tire recycling, scrap metal recycling, textile recycling, yard waste diversion at the Alamo, while purchasing the site from the TLDC, and expanding recycling options

on site to include sorted paper products, cardboard, glass, plastic, and bulk plastic for public use. The timeline for reopening the Alamo on a limited basis will be by summer 2019 while expanding the recycling options at the Alamo occurring prior to this time. 2019 will serve as a test year to assess the recycling center's updated management practices. If the City follows this recommendation it will achieve one of the objectives of this plan: to establish a recycling center.

5.4 ORGANICS RECOVERY PROGRAMS

5.4 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **MAINTAIN CLEAN MULCH AND COMPOST PRODUCT**
- **EXPAND FOOD WASTE DROP OFF PROGRAM AT RECYCLING CENTER**
- **TEST CITY-MANAGED SMALL SCALE STATIC COMPOST PILE**
- **PILOT FOOD WASTE COLLECTION PROGRAM IN 2021**
- **EXPLORE REGIONAL SOLUTIONS FOR FOOD WASTE OVER PLANNING PERIOD**

The City does not currently have a municipal organics recovery program. To supplement community and privately offered programs the following recommendations are proposed:

The City has been collecting yard waste and brush from the residents for decades. This material accumulates annually and is mulched and hauled away. Beginning in 2018, 600 yards of the grindings were kept by the City at the Alamo to test the contamination rate and composting processes on site. Food waste recycling using composting requires food waste to be mixed with ground yard waste and brush material. In order to develop a food waste collection program it is critical to have a source separated organics (SSO) processor. Considering there is not a local medium or large scale food waste processor available and the City has a property available, it should build out a small scale static pile composting system at the Alamo. This can begin in 2019 with the material retained from 2018. This facility will operate as an exempt facility under NYS 6 CRR-NY 361-3.2.

Once the Alamo is open to the public as a recycling center, a food waste drop off program will be made available in compliance with the DEC's exempt compost facility limits of no more than 1,000 lbs per week of Source Separated Organics (SSO). This site is not expected to bring in this much material. However, it is important to test operation and management before expansion. This test will be conducted over the course of 2019 and 2020. If this is a successful pilot, and a clean mulch and compost product can be manufactured, the City can begin a pilot collection program for SSO to begin in 2021.

The reason for what might appear to be an extended timeline for the implementation of a food waste recycling program pilot in Troy is that SSO collection programs require processors to accept the collected material. The lack of food waste processing locations like compost facilities or anaerobic digesters is the greatest limiting factor relating to the collection process. Therefore, it is important that material can be processed internally in order to maintain a municipal collection program. If the manufacturing of compost and mulch is successful between 2019 and 2021, the location can become a registered facility which would allow for the acceptance of the maximum quantity of material the Alamo could handle. Currently, after grinding, there is approximately 2,000 yards of material. Based on the testing, this could result in the acceptance of up to 500 yards of food waste annually or approximately 10 yards of food waste per week at the site. Based upon industry averages of household generation of food waste, the Alamo site could handle a

pilot SSO collection program of 250-400 households. A Pilot for these households would operate until other food waste processors are started or established. A report outlining an expansion will be presented at the second bi-annual update in 2021.

The expansion of food waste processors locally would be beneficial not only to the City of Troy but also the region. A regional approach to food waste management, in conjunction with other solid waste practices, would diversify the options for local municipalities when it comes to best practices in reduce, reuse and recycle. Rather than all local municipalities relying on a single large processor for a single type of material a network of regional food waste processing facilities can potentially manage the total amount of organic waste produced in the City of Troy and the Capital Region. The single regional processor approach has led to problems like the Albany landfill price increases at County Waste's material recovery facility. A diverse regional approach will ensure that Troy has access to food waste processors in the future.

5.5 C&D Reduction including Deconstruction, Reuse and Recovery Programs

5.5 – Recommendations for implementation by City

- **Create Deconstruction Permit**
- **Establish First Time Homebuyer C&D Education Program**
- **Create Database of all Recycling, Reuse, Salvage and Deconstruction Services;**

The City of Troy does not currently have any Construction and Demolition recycling. Many successful municipal guides exist for C&D recovery and recycling. Because the City of Troy has no preexisting C&D recycling infrastructure it will be important to establish protocols for this recycling method. Construction and demolition debris is a constant element in a legacy City like Troy. Whenever the City's unique architectural history and building materials can be salvaged or recycled they should be. This can be facilitated through a C&D recycling facility and expanded deconstruction education. The EPA has found that "[i]f residential housing designed from 2000 to 2050 allows for the recovery of just 25% of construction debris, the resulting material would be enough for nearly two-thirds of the housing units built over the following 50 years" (Appendix 16 – EPA Fact Sheet).

Deconstruction permits give contractors the opportunity to take apart a building to sell, recycle or landfill parts in individual pieces instead of landfilling an entire building through demolition. It is recommended that the City create a deconstruction permit that is cheaper than the current demolition permit. A copy of the current demolition permit requirements is attached as Appendix 17. Adding this permit will educate contractors and property owners who are unaware of the deconstruction option. The end goal is to achieve a construction and demolition recycling rate, separate from SSR. Due to low utilization rates, the City has no C&D recycling-related data. Once hauler permits are updated and enforced, the City can begin capturing C&D data which will allow for analysis to establish baseline recycling rates. Syracuse, NY has a deconstruction permit and RFP that should be considered when the City develops its own C&D program. The timeline for creating the deconstruction permit should be the end of 2019. A deconstruction request for proposal, in addition to a demolition request for proposal will take more time to research and should be done before the 2021 bi-annual update fulfilling the related objective of this plan.

First time homeownership is growing in the City of Troy. C&D deconstruction and salvage opportunities are not properly taught to residents or future residents who attend first time home buyers workshops. Working with First Time Homebuyer programs on a C&D education program will give the City the opportunity to educate potential buyers of proper recycling techniques for construction debris.

Related to this, an online resource of all available C&D recycling, salvage, and deconstruction services will be published by the City. This clearinghouse

should expand to include all recycling, reuse and reduction services available within the region. This clearinghouse should be finished before the end of 2019, with annual updates to add or remove information as needed. Establishing a recycling and C&D recycling clearinghouse and creating First Time Homebuyer education surrounding deconstruction both fulfill the objective of this plan relating to increased public outreach and education.

5.6 INCENTIVE BASED PRICING

5.6 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **CONSOLIDATE ALL SOLID WASTE COLLECTION PROCEDURES UNDER CITY CODE CH. 247**
- **ISSUE ANNUAL TIP FEE OUTLINING ACCEPTABLE BULK COLLECTION ITEMS AND DISPOSAL COSTS**
- **CREATE BASE HAULING FEE FOR BULK COLLECTION BASED UPON YARDAGE AND ITEMS**
- **CREATE SANITATION FUND TO SEPARATE WASTE COSTS AND REVENUES FROM GENERAL FUND**
- **DEVELOP AND IMPLEMENT HYBRID P.A.Y.T. SYSTEM: 2019 REPORT, 2020 IMPLEMENTATION**
- **ELIMINATE SOLID WASTE MANAGEMENT FEE SUNSET CLAUSE**

5.6.1 City Code 188 and 247 – Bulk Pricing Adjustments

Chapter 247 of the City Code (see Appendix 12) addresses solid waste and municipal collection. In Part 188: Littering, the code covers collection of bulk materials. This section does not clearly outline the system for bulk material collection, as such it should not only be moved to 247 but also be rewritten to provide a clear outline of how the City collects bulk material, an explanation of the services it offers, and related costs. NYSDEC recommends exploring the concept of incentive based pricing for solid waste management; this is based upon the S.M.A.R.T. method of waste reduction (Save Money And Reduce Trash) outlined in NYSDEC's 2009 "Beyond Waste" State Solid Waste Management Plan.[8] It is recommended that the City adjust its bulk collection as follows to incentivize waste reduction and reduce solid waste costs.

The City will issue an annual tip fee sheet, outlining the cost of disposal for all waste items with pricing adjusted based on market conditions. Each item will have a tip fee attached to it. The starting list will consist of: 30 Gallon Contractor Bag, Single Bulk Refuse Items, Appliances with Freon, Appliances without Freon, 30 Gallon Bag C&D, Tree Debris above 3ft in length and 12in in diameter, Tires (with and without rim). There will be separate categories for: Electronic Waste, Household Hazardous Waste, and Propane Tanks. The goal of itemizing this list annually is to increase awareness for the cost of disposal to cover the actual costs of disposal related to each item. The intention of tip fees is that all of the above

[8] Beyond Waste: A Sustainable Materials Management Strategy for New York State New York Department of Environmental Conservation, December, 2010, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

material will be accepted at the listing price scheduled at the Alamo site beginning in 2019. This is the least expensive option of disposal for tax payers.

The next least expensive option will be to schedule a bulk collection with the City DPW dispatcher at a residence for a hauling fee based upon the amount of material collected. The price will be a hauling fee based upon the yardage plus the tip fee schedule. The hauling fee will be adjusted annually on the tip fee schedule. Establishment of a clear hauling and tip fee procedure for waste collection fulfills objective 4 related to enforcement of illegal dumping and trash violations outlined in City Code Chapter 188 (see Appendix 13). If a bulk collection is not scheduled with the City it will be considered a first offense violation. A violation fee will be attached to the tip fee and the hauling fee.

All of these procedures will provide property owners a clear and consistent system to allow for the collection of bulk material by the City. The City will continue to offer free collection days of certain materials like Household Hazardous Waste, Electronic Waste, Scrap Metal and more. The City should offer a free bulk collection service for either a scheduled month or a day at the Alamo. These recommendations should assist in the fulfillment of the objective of this plan relating to creating clear solid waste processes.

5.6.2 SANITATION MANAGEMENT FEE AND SANITATION FUND

In 2000 and 2012 two separate reports were issued concerning the City of Troy's Solid Waste situation – one regarding Municipal Composting, the other outlining the benefits of PAYT. Both of these reports recommended the removal of solid waste costs from the general taxes, outlining the exact costs of solid waste to the taxpayer. The City of Troy complied with these recommendations in late 2017. A Sanitation management fee was established in 2018; the law has a sunset clause of 1 year. It is recommended that the solid waste management fee remain in place as a permanent funding fixture for Sanitation and a stepping stone to Pay As You Throw, in accordance with NYSDEC and other previous recommendations. This sanitation management fee will continue to increase public awareness of the cost of municipal solid waste collection and serve as a foundation for the establishment of a PAYT system.

In addition to keeping the sanitation management fee in place it is recommended that the City set up a separate fund for sanitation. This Sanitation Fund will account for all related solid waste expenses and revenues. By establishing such a fund, the future of solid waste will become financially stable and ensure that Sanitation operates outside of the General Fund. The department is in serious need of large equipment upgrades. The establishment of a separate fund will ensure that these large capital investments will occur as necessary rather than relying on consistently deteriorating collection vehicles that are over a decade old

for critical collection services. Additionally, potential future tip fee revenues and recycling savings can be made more transparent in the Sanitation Fund.

In 2018 the City billed the property owners for the Sanitation Management Fee separately from their regular tax and utility bills. Due to the separate billing of this fee property owners were confused by the bill and what it was. In order to streamline billing processes and reduce confusion the City should add a line item on the property tax bill that goes out, instead of sending out a separate bill. It should be titled Sanitation Management Fee in order to be clear what it is for and that it goes into a different fund.

These three recommendations are in the best interest of the Sanitation Bureau and the property owners in order to ensure the City continues to reduce MSW and increase recycling rates, while properly managing its waste collection department. The creation of a separate Sanitation budget fund, continuation of the SWM fee, and streamlined billing procedures will assist in the fulfillment of the objective of this plan to create clear processes for the City and property owners and to increase appropriate participation in the collection process.

5.6.3 Pay As You Throw (PAYT)

The PAYT model of solid waste collection has been recommended to the City in conjunction with the sanitation management fee. The success of PAYT systems is evidenced in both the State and in the Country. PAYT systems reflect an equal and fair method of waste disposal that bases costs on actual volumes or weight.

There are two primary examples of PAYT systems. One refers to a bag system through which a municipality only collects solid waste that is put out in a specific type of bag designated by the municipality. These waste bags are sold in various locations within the municipality. The sale of bags covers the cost of waste collection for the entire municipality. The City of Utica, NY currently utilizes a hybrid PAYT bag system, where they are billed an annual solid waste management fee and pay per bag.

The other primary PAYT system refers to a volume-based method which utilizes carts. In this system every property owner is given the opportunity to utilize a select size of cart for their specific needs. The carts vary by size – as small as 13 gallons and as large as 96 gallons. The size of the cart that is serviced weekly indicates the waste costs. The property owner is free to change their cart size based on trash volumes. Buffalo, NY, and San Francisco, CA currently utilize a hybrid of this cart-based PAYT method, where they are billed an annual solid waste management fee and pay a different annual fee per cart used based on the size of the cart.

From a collection and management standpoint the difference between these two types are drastic and involve very different forms of investment. There are many examples of municipalities that have found success with PAYT systems and should be reviewed for research. The prior separation of the SWM fee has positioned the City for the creation of a hybrid PAYT program.

The City should develop and implement a PAYT system for its residents to create fair and equal costs for property owners related to solid waste services. This process will involve a full cost-benefit analysis of all types of PAYT systems, including how each would operate within the City of Troy and potential costs of implementation. The breakdown and analysis, together with delivery of a subsequent report and decision, will occur in 2019, with implementation of the selected PAYT system during 2020.

Regardless of which system is ultimately chosen, a hybrid PAYT system creates incentive based pricing while passing along potential savings through reduction in the volume of solid waste disposal. This methodology separates out costs into an annual sanitation management fee and PAYT costs. The sanitation management fee covers capital expenses, the cost of hauling material, debt services and other fixed expenses. The PAYT fees are intended to cover variable costs, the tip fees and fluctuating costs in the recycling marketplace. In this way the PAYT fees can fluctuate annually based upon usage, changes in waste costs, and savings based upon recycling. The hybrid PAYT system will ensure that Sanitation is properly funded while allowing for the fair and equal cost allocation and potential savings to be shared by property owners.

5.7 WASTE DISPOSAL OPTIONS

5.7.1 Municipal Solid Waste (MSW)

Significant investment and upgrades are necessary to ensure the City can continue to provide reliable solid waste services to the public. The following recommendations are made for MSW services:

- The City should continue to replace old equipment with new equipment at the optimum frequency relative to maintenance, operating and capital costs. Data to support the replacement frequency should be documented. Examples from other municipalities should be available as a reference.
- The City should make available to residents, property and business owners clear information regarding all existing, proposed and enacted waste and recycling processes. Information should be provided regularly and frequently and in various formats, including through traditional media and City-managed communication platforms. Given the large rental population, public outreach must go beyond property owners alone to reach the transient population in order to be effective.

- The City should create maximum weight and volume limitation rules for MSW collection from properties using municipal collection. These rules will help establish a maximum amount of waste a property owner can put out for collection by municipal services.

5.7.2 Bulk

Recommended changes to bulk collection have been outlined previously in this section. The City should continue to make the necessary equipment upgrades in accordance with the current capital plan to handle changes in bulk collection which will be critical in the future.

5.8 ENFORCEMENT PROGRAMS

5.8 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **FILL LITTER PATROL OFFICER POSITION**
- **ADVOCATE PUBLIC'S ROLE IN REPORTING VIOLATIONS**
- **EXPLORE TECHNOLOGY TO EASE REPORTING AND CREATE TRANSPARENCY AND ACCOUNTABILITY**
- **REQUIRE PROPERTY ADDRESSES BE VISIBLE AT SOLID WASTE COLLECTION AREAS**
- **EXPLORE HOUSING COURT CREATION TO EXPEDITE SOLID WASTE VIOLATION PROCESSES**

In conjunction with the articulation of clear cost and collection processes, the City of Troy must implement new rules governing the enforcement of MSW violations. The Litter Patrol Officer is a position which has been vacant for over a decade. In order to ensure the efficacy of the new procedures this position will need to be recreated and filled before the start of 2019. The Litter Patrol Officer must have the same regulatory authority as a code officer but will work within the Sanitation Bureau. Staff tasked with enforcing trash violations must work with Sanitation employees in order to maintain constant communication. Drivers and laborers generally witness most violations first and are able to discern patterns of violations in areas across Troy (e.g. alleys routinely utilized for illegal dumping or improper waste disposal practices).

The public will also serve an important role by participating in the process of reporting violations in their neighborhood and near their homes. This will work only if the public understands how to report a violation and that they must contact DPW to have certain materials collected to avoid a violation. A second Litter Patrol Officer must be hired if violations warrant more enforcement. The timeline for update on control of violations will occur during the 2020 update.

There are a variety of additional tools available to municipalities which empower the public to take a greater role in reporting issues in their community. These technologies help cities identify and resolve a variety of reported issues more quickly while providing internal ownership of each problem. Platforms like SeeClickFix and Citizen Connect allow the public to engage with the City on neighborhood issues, while expanding accountability for City staff to resolve reported violations, and generate valuable data for use by the municipality to analyze for future improvements to services.

Further assistance is needed to make positive changes to the City's solid waste enforcement policies; the following recommendations are made to achieve this objective:

- The City should require that home addresses be visible wherever solid waste is collected. This ensures that the solid waste can be correctly identified with the property when a violation is issued.

- The City should invest in a streamlined and transparent form of reporting and enforcement. There are existing technologies, mobile apps, and programs that allow residents to report solid waste violations and other problems to the City publicly.
- Although not specific to solid waste, it is recommended that the City should explore the possibility of establishing a dedicated Housing Court to expedite adjudication and payment of solid waste-related violations.

5.9 EDUCATION AND OUTREACH

5.9 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **MAINTAIN RECYCLING COORDINATOR POSITION THROUGHOUT PLANNING PERIOD**
- **INCREASE NUMBER OF RECYCLING EVENTS OFFERED ANNUALLY**
- **EXPAND EDUCATION AND OUTREACH OPPORTUNITIES OUTSIDE OF ANNUAL EVENTS**
- **PUBLISH MAP OF SOLID WASTE COLLECTION ZONES ON WEBSITE**

In 2018 the City hired a Recycling Coordinator to assist with public education and outreach associated with MSW and SSR services. Maintaining this position will be critical moving forward in order to increase participation in alternative waste streams like SSO, creation of a recycling center drop-off facility, and expansion of recycling events, programs and other educational opportunities. The City should offer three expanded opportunities for public outreach and education.

First, the City should expand the number of annual recycling events. As per the recommendations related to incentive based pricing and creation of a city recycling center, certain materials the public believes are picked up free will need to be charged for. Expanding recycling events that offer free or cheaper options for disposal of material allows for easier handling by the City as well as reduced costs and more consistent availability for residents. Some of the programs currently offered, like Household Hazardous Waste day, can be offered twice per year with assistance of available NYSDEC funding grants. This will enable costs to be split over several events, allowing for increased usage without increasing costs for the City. Offering a regular electronic collection day provides residents a free option to dispose of e-waste without incurring the updated tip fee rate. The number of recycling events should go to 2 annually in 2019, then up to 4 annually by 2024. The viability of 4 events annually should be evaluated at the bi-annual update in 2024 and should be reported on for future increase or decrease of recycling event usage.

Second, the City should expand their public outreach and education opportunities. Outreach should be conducted regularly and annually, and should be separate from recycling events. The development and implementation of frequent public education opportunities by the Recycling Coordinator is a positive step. Additionally, participating in regular public organization meetings such as Troy Zero Waste and scheduled neighborhood meetings will give residents direct access to have questions and concerns addressed in a timely manner.

Finally, the City should publish a map of collection zones on the City website. Making this information available online provides the public direct access to this information without the need to call the DPW dispatch. The addition of online resources will also fulfill the objective related to establishing clear solid waste collection processes.

5.10 DATA COLLECTION AND EVALUATION PROGRAMS

5.10 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- **COMPLETE COMPREHENSIVE RECYCLING ANALYSIS FOR NYSDEC**
- **CREATE ANNUAL SOLID WASTE REPORT**
- **SOLID WASTE ADVISORY BOARD BECOMES PERMANENT**
- **DEVELOP LOCAL AND REGIONAL PARTNERSHIPS FOR DATA COLLECTION AND EVALUATION**

The City hired a Recycling Coordinator in 2018 to, among other things, assist in data collection, evaluation, management and monitoring of all solid waste processes. This position will continue to fill in the many data gaps outlined in Section 2. The compilation of accurate waste information is critical to the future of solid waste planning in the City and for properly completing a Comprehensive Recycling Analysis as required by New York State. It is also recommended that an annual solid waste report be generated, with the assistance of the Solid Waste Advisory Board, encompassing an overview of the prior year of the City's solid waste services. This will serve to enhance the transparency sought throughout the process.

The Solid Waste Advisory Board should be established as a permanent board under City Code the purpose of which is to advise the City on Solid Waste issues and to provide a resource throughout the analysis of new data. The Solid Waste Advisory Board's structure, roles and responsibilities should be outlined within the City Code. This will provide valuable insight and feedback which will improve the reporting and evaluation process of many future solid waste plans and allow for the implementation of recommendations within this plan.

Troy needs to research the development of improved regional and local partnerships for potential wider data analysis. In collaboration with local educational institutions the city could provide relevant solid waste data for analysis through relevant educational programs. The City is only a part in the larger Capital Region waste stream and being able to monitor annual trends over a larger scale will be not only important but ultimately provide a framework for future collaboration sand be more cost effective, critical to the City's ability to do the best job possible for the tax payers.

5.11 HAULER LICENSING

The City currently mandates that waste haulers apply for permits annually with the City. The City Code has two separate sections pertaining to hauler permits: 234-4 and 247-5 (See Appendix 11 and 12). These two sections are contradictory and neither have been created, implemented, or enforced. The City must rewrite these contradictory pieces and begin enforcing hauler permits in 2019. With the code changes, certain data requirements must also be met in order to increase the accountability of these haulers and provide the City with more information on internal waste generation. Specifically, these new permits must require annual information and quarterly data updates.

The recommended changes to required annual information are as follows:

- Vehicle descriptions that will be operating within City limits; and
- an annual permit fee

The City should require the submission of quarterly data reports. The proposed report requirements are as follows:

- Amount of material hauled over the course of the quarter, by material type;
- Name, Address, other materials accepted, and Operator information of the destination sites for materials hauled; and

In the event that the quarterly data requirements were not met, a permit shall not be issued for the following year. An example permit application and quarterly report is provided by the Town of Bethlehem, NY is attached in Appendix 18. Most municipalities require a hauler permit in some capacity to operate within the respective municipality. Data reporting is also required of private waste collection entities in order for municipalities to comply with data requirements to the State.

5.12 PRIVATE SECTOR MANAGEMENT AND COORDINATION OPPORTUNITIES

The City should periodically explore a public-private partnership when it comes to solid waste management. All factors should be considered when analyzing direct service costs associated with privatization of existing City services. SSO pickup, SSR, Bulk and MSW should all be considered separately. It is recommended to do this twice over a planning period or as new services is slated to come online.

5.13 Management of Waste through Thermal Treatment Technologies

The City should not invest in thermal treatment technologies for itself at this time. However, if they are brought from a private or public entity to the City the proposal should be considered. Thermal treatment technologies can have benefits to a municipality as long as the environmental impacts are insignificant.

5.14 Flow Control

The City should maintain all State mandated recycling laws as they are written. Although flow control can be useful, the City does not have the infrastructure to handle more than it already mandates when it comes to recyclables.

5.15 Green Procurement

The City must become current with New York's Green Procurement guidelines. In 2008, Executive Order 4 created a NYS Green Procurement and Agency Sustainability Program. It will be beneficial for the City to incorporate these recommendations into its contracts and procurement guidelines in the long term. Additionally, staying up to date on new specifications as they are issued by New York State will incorporate an environmentally friendly approach to the City's purchasing policies. By incorporating green procurement specifications, the City would purchase known reusable, recyclable or compostable materials, rather than buying material that needs to be landfilled or disposed as hazardous waste. Green procurement procedures are easily measurable once established and have measurable impacts on the waste stream. The suggested timeline for implementing this policy is 2020, before Solid Waste Advisory Board's first bi-annual update that year.

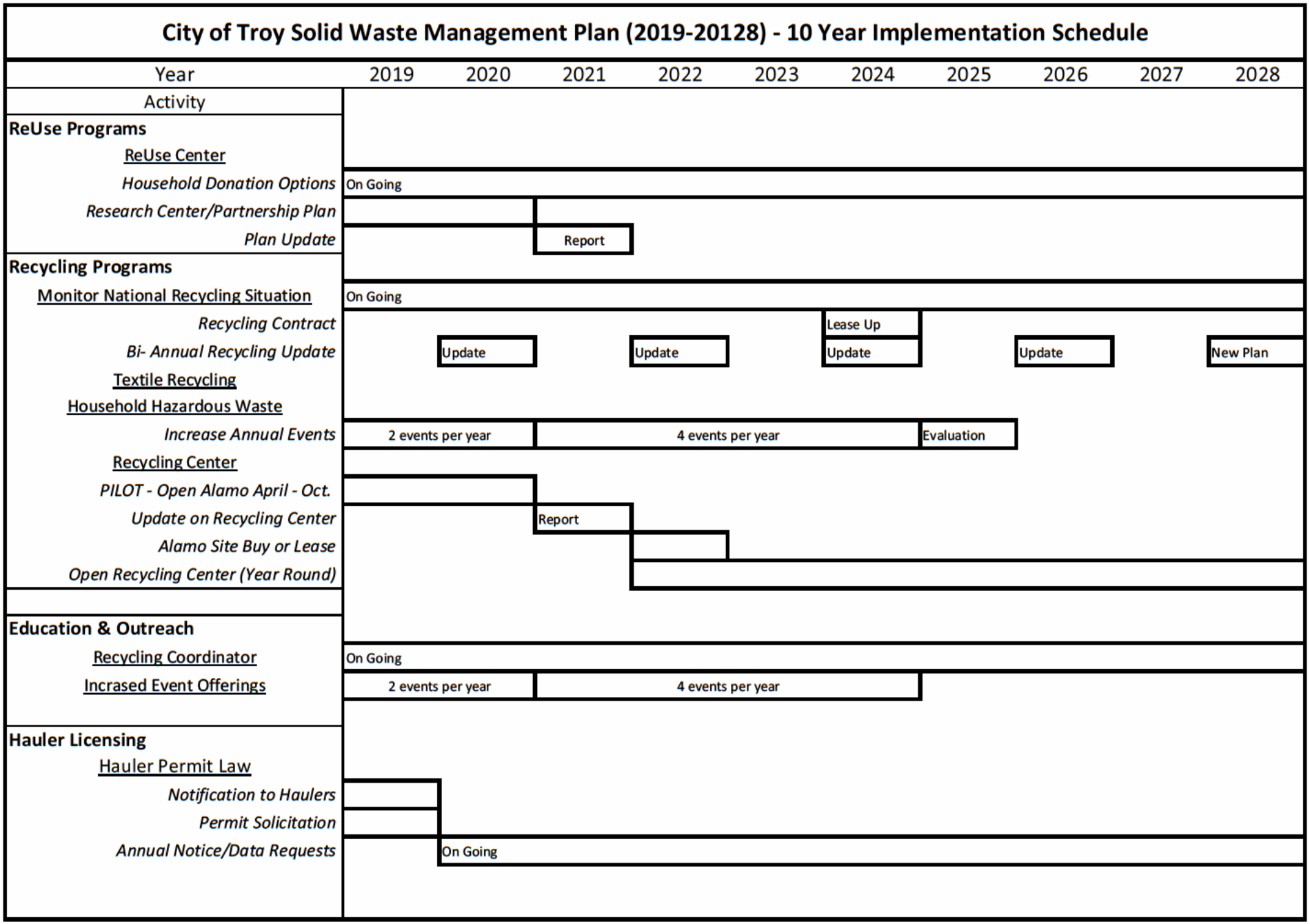
Section 6 – Implementation Schedule

The City should implement the recommendations in section 5 within this plans planning period of 2019 through 2028. Each subsection refers to a timeline within the discussion; if relevant each subsection has a timeline on the Section 6 chart. It should be noted that some of the recommendations have ambitious timelines. It is important that the City follow through despite this in order to achieve the objectives outlined in the Executive Summary before the end of the planning period.

It previously noted, publication of this plan is the first step toward achieving compliance with New York State law in regards to municipal solid waste management planning. This is the City of Troy's first SWMP and CRA produced in accordance with NYS guidelines. The City should adhere to all existing NYS laws pertaining to solid waste management.

To ensure proper implementation of this plan, the City should establish a tentative schedule for coordinating with New York State on achieving compliance with existing rules and regulations.

City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule



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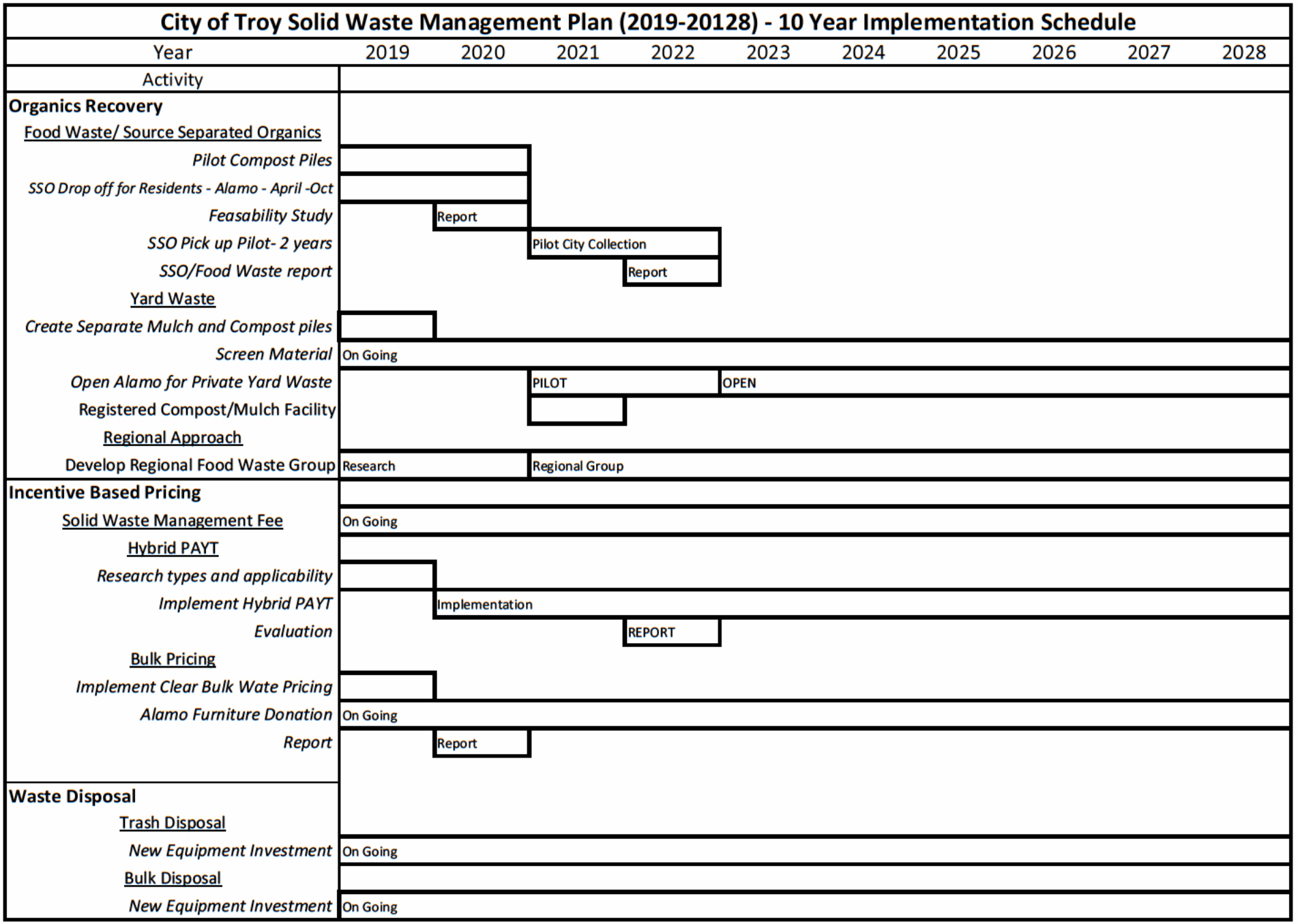

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City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
Enforcement Programs										
Litter Patrol Officer	1 LPO	Update		2 LPO if needed						
Address Visiblity										
Research Cost of Implementation										
Implement across City										
Solid Waste Advisory Board										
bi-annual updates		Update		Update		Update		Update		
Assist in New Plan (2029 Publication)								New Plan		
Data Collection & Evaluation										
Recycling Coordinator										
Annual Solid Waste Report	On Going									
Collect Missing Data										
Update Plan with New Data	On Going									
Regional Approach										
Research Possible Regional Options										
Join or Create a Planning Unit										
Flow Control										
Maintain Recycling Mandates	On Going									
Private Sector Opportunities										
RFP for Services										
RFP for Solid Waste Services for Comparison	Twice over the planning period									
Explore ReUse Partnership Opportunities		Report								

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City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
C&D Demolition, Reuse & Recovery										
Deconstruction Permit										
Generate a Deconstruction Permit										
City Deconstruction RFP										
Create an RFP for deconstruction										
Issue RFP for Demolition Jobs										
Homeowner Education	On Going									
Salvage Yard										
public-private opportunity research										
Salvage yard Opportunity Update										
Recycling Clearinghouse										
Online Database of Recyclingand Reuse services	On Going									
Thermal Treatment Technologies										
No Major Plans										
Waste Reduction Programs										
Green Procurement										
NYC DEC Green Procurement Law-current	On Going									

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Municipal Composting in Troy

Draft Report of the Citizens Working Group—Composting

Prepared by
Abby Lublin, *Chair*, Anasha Cummings, Lucy Greetham, Mary Alice Pasanen, and Guy Schaffer

December 10, 2012

(see full report at troycompost.wikispaces.com)

CONTENTS OF REPORT

1 // EXECUTIVE SUMMARY

"Nationwide, food waste accounts for an estimated 12.5 percent of Municipal Solid Waste (MSW). At a time when many recycling programs have hit a plateau, food waste is commonly the next segment of MSW to be tapped for diversion. Collecting food waste is often more challenging than collecting typical recyclable materials. Some of the hurdles to collecting food waste from both residential and Commercial, Industrial, and Institutional (CII) generators include space considerations, the costs of collection containers and vehicles, and the distance to the composting/processing facility." [1]

"I was tutoring a student recently in world history when it hit me--over 4,500 years ago, the Harappan Civilization in the Indus River Valley Region (one of the world's earliest urban civilizations) created advanced systems in sewerage and draining, handling solid waste and wastewater in ways that placed high value on hygiene. Civilizations have never ceased to prioritize nor make advancements in the management of organic materials."[2]

THE PROBLEM(s).

LANDFILLS and CLIMATE CRISIS

Throwing food waste into landfills creates greenhouse gases, which significantly contribute to global warming. The devastating effects of Hurricane Irene and Superstorm Sandy are acute, local reminders of the urgent need to make changes to our current waste management practices. Responding to this urgency, three neighboring states – VT, MA, and CT - have passed laws, or are in the process of passing laws, banning organic materials from disposal to landfills. Laws banning the disposal of organic waste expedite and incentivize widespread composting, but municipalities across the country are experiencing the benefits of increased recycling and composting prior to state and federal mandates.

There are no remaining active landfills in Rensselaer County, and only two in Albany County. According to calculations based on 2010 tonnage, there are fewer than 20 years remaining in the lifespan of the Colonie landfill[3], the primary recipient of Troy's solid waste. Albany is expanding its landfill into protected habitat for a temporary fix. The City of Albany's Draft Solid Waste Management

[1] "Food Waste Composting Pilot Project " Ulster County Resource Recovery Agency, accessed
[2] Abby Lublin, personal communication, December 15, 2012.
[3] "2010 Solid Waste Capacity Chart," New York State Department of Environmental Conservation, accessed January 12, 2013, http://www.dec.ny.gov/chemical/47984.html.

Plan includes provisions for organic waste management for the region.[4] In 2008, New Yorkers sent 4.1 pounds of municipal solid waste (MSW) to disposal facilities per person per day, or 0.75 tons per person per year. The New York State Department of Environmental Conservation (NYSDEC) seeks a progressive reduction in the amount of MSW destined for disposal to reach the ultimate goal of disposal to 0.6 pounds per person per day by 2030[5]. Governor Andrew Cuomo's Cleaner, Greener Communities Program has established the following goal in the Draft Capital Region Sustainability Plan: to reduce Green House Gas (GHG) Emissions 80% below 1990 levels by 2050[6]. Such goals will not be achieved without municipal plans for better management of organic materials, a primary source of GHG emissions from landfills. While there are attempts to capture methane from landfills for energy usage, these attempts are often highly problematic[7]. There are essentially two ways that food scrap recycling reduces GHGs: 1) by removing organics from the landfill, thereby reducing methane production; and 2) through the use of compost made from food scraps. Food scraps emit more methane than any other material in the landfill. Keeping food scraps out of the landfill reduces the amount of methane produced. Methane is 72 times more potent a GHG than Carbon Dioxide (CO2) in the first 20 years, and 23 times more potent over 100 years[8].

COST

The City of Troy incurs the cost of transporting and tipping (disposing) the solid waste products from residents, 1500 businesses, and government offices. Troy disposes of 23-25 thousand tons of solid waste in landfills each year, averaging an approximate $1.5 million cost to taxpayers annually. That $1.5 million is in tipping fees alone, and does not include all overhead costs of Troy's solid waste program. DPW's current budget for Solid Waste Management is $3.3 million[910].

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[4] "Solid Waste Management Plan," Capital Region Solid Waste Management Partnership, last modified August 1, 2011, http://www.capitalregionlandfill.com/management/

[5] "Beyond Waste: A Sustainable Materials Management Strategy for New York State," New York Department of Environmental Conservation, las modified December 27, 2010, http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf.

[6] "Capital Region Sustainability Plan: Draft Plan Available for Review," Cleaner Greener Communities Capital Region Consortium, last modified December 8, 2012, http://sustainablecapitalregion.org/full-report

[7] Bill Chamberlain (Solid Waste Coordinator) in discussion with Abby Lublin and Anasha Cummings, November 2012.

[8] "Capital Region Sustainability Plan: Draft Plan Available for Review," Cleaner Greener Communities Capital Region Consortium, last modified December 8, 2012, http://sustainablecapitalregion.org/full-report

[9] "City of Troy Proposed 2013 Annual Budget," Troy City Council, last modified October 1, 2012, http://www.troyny.gov/Libraries/Budget/prop_2013budget.sflb.ashx.

[10] Bill Chamberlain (Solid Waste Coordinator) in discussion with Abby Lublin and Anasha Cummings, November 2012.

Recyclable materials go to the County Waste transfer station in South Troy, operated by Waste Connections, where they are then delivered to the Port of Albany facility for sorting, bundling, and resale. Recycled materials generate no cost nor revenue to the City of Troy, but for every ton that residents and businesses (1,500 who are not on private contracts) recycle, taxpayers save $60 in tipping fees.

Using data from the NYSDEC's 2010 Beyond Waste report, the Citizens Working Group on Composting (CWG-C) has determined that for every 1% increase in the city's recycling rate, the City will save at least $15,000 in tipping fees (see Table 1.1).

MISSED OPPORTUNITIES

Without significant increases in recycling and composting, the City of Troy is missing opportunities for financial savings, creating jobs, revenue streams, and ecologically-sound practices. The role of city government includes the management of natural resources to sustain a community's well-being, from clean air and clean water to healthy soil and healthy people, from renewable energy and recycling to composting and conservation. Underlying these core principles is a very practical concept: *integrated solutions*. "Integrated Solutions" essentially means that there is more than a single solution from an investment in organics recycling. For example, diverting food waste from the landfill could provide multiple solutions, including reduced landfill methane emissions, generation of renewable energy via anaerobic digestion, production of high value compost via composting, and the creation of multiple jobs. In turn, the compost could be used to grow healthy food, address challenges with storm water management, revitalize depleted soils, and replace fossil-fuel fertilizers.[11].

THE POTENTIAL BENEFITS OF COMPOSTING IN TROY INCLUDE:

- Reducing the amount of solid waste disposed thereby decreasing GHG emissions (helping meet established goals) relative to current landfilling practices
- Decreasing tipping fees of solid waste
- Producing soil amendment for landscaping and nutrient-rich fertilizer for food production (replacing fossil-fuel fertilizers)

[11] Miriam Zimms and David Ver Eecke, “Developments in North Carolina, South Carolina and Florida are captured in this roundup of commercial food waste diversion to composting,” BioCycle 53, no. 10 (2012): 20.

Table 1.1: The City of Troy's MSW Stream: Content, Diversion, and Cost[12][13][14].

	Content of Average NYS Waste Stream	NYS Average Diver-sion Rate	Troy Quantity Diverted (tons per year)	Troy Recovery (End use by %)	Estimated total quantity in waste stream (tons per year)	Total not currently diverted (tons per year)	Potential Savings through greater collection/diversion ($60/ton) *tipping fees only
Recyclable	55%	24% (includes yard waste)	1,200-1,350 (does not include bulk metals or hazardous waste)	6.3% of normal household waste, 15-20% of overall waste	10,455	9,255	$555,321
Compostable	27%	N/A	75-125 (yard waste)	.4% (yard waste)	5,133	5,057	$303,457
Other (Landfill/ Combustion)	18%	76%	N/A	93%	3,421	N/A	N/A

[12] "Beyond Waste: A Sustainable Materials Management Strategy for New York State," New York Department of Environmental Conservation, las modified December 27, 2010, http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf.
[13] Gerard J. Wagner (Division of Materials Management, NYS-DEC) email to Abby Lublin based on 2010 Annual Reports, January 2012.
[14] New York. State Department of Environmental Conservation, Division of Materials Management. Annual Report Form – Planning Unit Recycling Report: 2010, City of Troy. Troy, 2010.

- Managing storm water by applying a compost blanket (significantly helps keep rainwater where it falls thus reducing pollutant load and sewer overflows)
- Preventing soil erosion
- Providing an end-product source of income
- Generating heat
- Possibly generating energy to be used and sold back onto the system grid

RECOMMENDATIONS:

With one of the lowest recycling rates in the state[15], Troy can go far in reducing our disposal to landfills and decreasing expenditures by aggressively increasing its participation in recycling-- a system with current infrastructure and protocols. ***In addition to increasing the recycling of non-organic solid waste, the CWG-C recommends the implementation of municipal composting of food scraps and yard waste in both a centralized and decentralized system.*** This could be done through staged implementation and the participation of many city departments and partners. The CWG-C has identified seven areas of recommendation for the City of Troy:

- Amendments to City Code
- Education and Enforcement
- Recycling Coordination
- Building a Facility or Partnering with Farms
- Neighborhood Scale Composting
- Funding Opportunities
- Citywide Collection

TIMELINE of IMPLEMENTATION

The general strategy is to increase participation in the current system (single-stream recycling) as a way to increase landfill diversion and decrease tipping fees paid by the city through taxpayer dollars, then to phase-in the implementation of composting systems and practices in logical, affordable ways.

[15] "Beyond Waste: A Sustainable Materials Management Strategy for New York State," New York Department of Environmental Conservation, las modified December 27, 2010, http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf, Appendix C.

Stage 1: up to one year:

- **Update information** on the City of Troy website to better reflect current practices and to inform and educate residents about composting opportunities.
- **Provide resources for backyard composting**, such as guidelines and compost bins.
- **Create and launch a public education campaign on recycling and composting** engaging partnerships with neighborhood groups, artists, and activists.
- **Itemize solid waste disposal costs** on tax bills thereby making the amount visible and known to residents.
- **Enforce recycling and trash disposal laws** at curbside collection by issuing warnings and fines where there is evidence of violation.
- **Improve public source separation** through visible, public recycling bins
- **Provide recycling** in all city and state **government buildings**, encouraging the City to lead by example.
- **Amend city code** to reflect **current single-stream recycling and composting**.
- **Hire a Recycling and Composting Coordinator** to oversee and expand education, enforcement, and materials recycled and reused; paid for by DEC match and savings from decreased tipping expenses.
- **Transfer** specific, city-owned, **vacant lots** to neighborhood organizations for **neighborhood-scale compost piles.**
- **Promote local agriculture programs and businesses** running organics collection and composting projects. **Encourage organics drop-off** at the Troy Waterfront Farmers Market and participating Capital District Community Gardens' sites by **providing information** on the City of Troy website.

Stage 2: up to three years:

- Adopt a **Pay-as-You-Throw System** (PAYT) for Solid Waste (thereby eliminating the annual, flat fee for recycling) with bin and/or bag standardization.
- **Expand and multiply pilot, small-scale composting sites** and projects to help residents continue to lower their PAYT fees.
- Implement **a pilot curbside pickup program** for separated organic waste.
- **Contract with local farms, facilities, and businesses** that are currently composting to introduce food waste from Troy to their feedstocks. **Partner** with said farms, facilities, and businesses to **expand capacity**.

- **Publicize a pilot program, to be launched in Spring 2013,** in the dining halls **at RPI**, and **encourage expansion** to other institutions. **Use the data for capacity projections** for a municipal facility.
- Research **markets for sale** of finished **compost** and **biogas.**
- **Write and disseminate an RFP** for professional design services for building an organic materials processing facility.

Stage 3 up to five years:

- **Pursue funding opportunities** to defray implementation costs of a new program and facility. Federal, state, and private **grants** and **loans** are available.
- **Apply savings** from decreased landfill tipping expenses towards building infrastructure for recycling organics.
- **Build a facility** within or near Troy for end-use processing of commercial and institutional-scale organic material.

CONCLUSION

Just a few years ago, diverting food waste from landfills was perceived as a program that only the most progressive cities and counties could embrace. This attitude is changing, and diverting food waste for composting is becoming a mainstream practice. Cities, counties and even states from California to Connecticut are implementing a wide variety of programs to increase the diversion of food waste. With nearly 25 percent of the total U.S. waste stream made up of organics, finding ways for Troy to recover these materials before they are forever buried in a landfill could help save money, meet measurable environmental goals established in the New York State Solid Waste Management Plan, Climate Smart Communities Pledge, and Capital Region Sustainability Plan, and create a cradle-to-grave system for organics that replenishes nutrients back into the soil and possibly generates renewable energy. Since Troy has recycling and yard waste protocols already in place, it could begin diverting organic material from the landfill by creating food waste composting programs[16].

[16] "Food Waste Composting Pilot Project," Ulster County Resource Recovery Agency, accessed January 12, 2013, http://www.ucrra.org/rra-boardmem/info/UCRRA%20Composting%20Business%20Plan.pdf

2 // THE CITIZENS WORKING GROUP ON COMPOSTING

The current Troy City Council took office on January 1, 2012, and will serve until December 31, 2013. In an effort to create a more sustainable city and a more engaged citizenry, the City Council formed the Citizens Working Group – Composting (CWG-C). The CWG-C is a research taskforce team, effective 6/15/2012 and terminating on 12/15/2012. It is a direct result of the unanimously passed city resolution introduced by Councilmember Rodney Wiltshire, and it is under the direction of the City Council's Technology and Sustainability Committee. The 5-member working group has researched details for positive and negative factors with the implementation of a city composting program. The goal of such a program is to greatly reduce the volume and cost of municipal solid waste while building a potentially profitable and sustainable income for the future of Troy.

Who We Are

We are a volunteer group of citizens passionate about the development of a more sustainable, equitable City of Troy. We are not professional planners, systems engineers, nor soil scientists. We see clearly the need to improve Troy's solid waste cost and management, including the introduction of widespread composting. Representing a cross-section of Troy, this Citizens Working Group has taken a serious look at how and why Troy can focus on composting throughout the city. What we now propose has been the outcome of countless volunteer hours of researching, writing, interviewing professionals and experts, attending conferences, and visiting resource recovery sites.

We have learned much from the process, both for ourselves and for the city. We recommend that the City Council and Administration utilize this "Citizens Working Group" model to investigate solutions to other issues in Troy. The CWG model enables citizens knowledgeable and passionate about various topics regarding governance and municipal practices to participate in decision-making by providing information, perspectives, options, and recommendations to elected and appointed officials in positions to authorize changes, allocate funds, and provide governing structure for implementation and oversight.

An early discussion about the importance of composting for Troy elicited the following statements of what the group wants to achieve in a composting system:

- It should move the city toward zero waste.
- It should raise a healthy community, through food security, jobs, and awareness of waste.
- The composting system should create fair, just, local jobs.
- It should be municipally managed, or at least locally owned.
- It should meet the specific needs of Troy's diverse neighborhoods.
- Its efficiency should be measured by its ability to turn food waste into resources. It should close the loop of consumption, allowing food scraps to be collected and re-consumed.
- It should promote food security by facilitating Troy citizens to grow food locally.
- It should maximize the use of financial, human, and geographical resources.
- It should help our community work together.
- It should build a new industry.
- It should help our community to understand its own consumption.

These guiding values have informed our research and deliberation process, and we feel that this report recommends a system that upholds these values.

The Citizens Working Group on Composting, December 2012
Anasha Cummings, Lucy Greetham, Abby H Lublin, Mary Alice Pasanen, Guy Schaffer

3 // RECOMMENDATIONS

1. **Amend city code** to (a) reflect *source separation goals*, and (b) implement *volume-based user fees* for non-compostable, non-recyclable solid waste
2. **Implement a broad based public education campaign** on Municipal Solid Waste and **increase enforcement** of existing code.
3. **Hire a Recycling and Composting Coordinator** to oversee and expand education, enforcement, and staying abreast of fluctuations in materials market and lists of recyclable materials, with a salary to be paid by DEC and the savings from waste diversion.
4. **Build a facility** in or near Troy and/or **contract with local farms, facilities, and businesses** for end-use processing of commercial and institutional-scale organic material.
5. **Create a system to support neighborhood-scale and backyard composting** by (a) transferring ownership of strategic, city-owned *vacant lots* to neighborhood associations and community-based organizations for neighborhood-scale, self-managed composting, (b) encouraging *collection* at the TWFM and participating CDCG sites, (c) *partnering with local organizations* that run collection and composting projects, and (d) providing resources for backyard and kitchen composting, such as educational materials and compost bins.
6. **Pursue funding opportunities** to defray implementation costs for the new program.
7. **Phase in city-wide collection** of organic resources by (a) studying and promoting a *pilot project at RPI*, (b) consider *permitting only private/commercial waste haulers* that have viable, separate, organic waste stream options, and (c) implementing a *curbside organics collection pilot program*.

In order to implement these changes, the CWG-C recommends that the City of Troy re-institute the Environmental Conservation Commission[17] and task them with moving forward these solid waste initiatives. It may also be helpful, in the development of the more specific policies and practices around recycling, for the Mayor to appoint and task the Citizens Advisory Board on Recycling[18] with guiding implementation.

[17] *Environmental Conservation Commission, City of Troy, NY Code* (1973), Chapter 39. http://www.ecode360.com/11130017 (accessed January 12, 2013).
[18] *Citizens Advisory Board, City of Troy, NY Code* (2007), § 234-8. http://www.ecode360.com/11130017 (accessed January 12, 2013).

Recognizing furthermore that increasing diversion will require changes in the daily routines of Troy's citizens, the CWG-C recommends a period of citizen deliberation and feedback before implementing this proposal. Such a process should (a) explain the purposes of the legislative and institutional changes required to encourage composting and recycling and (b) solicit feedback from residents that might help inform the proposal in order to increase compliance with new collection policies.

The CWG-C recommends that this deliberation and feedback take place in a three-stage process. In the first stage, an open meeting could allow the CWG-C to present the current plan to members of City Council, community representatives (from neighborhood committees and community organizations), and DPW-Sanitation staff working in Troy, respond to questions, justify recommendations, and solicit feedback. In the second stage, the groups tasked with implementation could respond to citizen feedback and incorporate it into further recommendations, while neighborhood associations deliberate through meetings and message boards, and use of the wikispaces living document. This stage may take anywhere from one week to one month. In the third stage, stakeholders would reconvene in another town meeting setting: the revised proposal should then be presented and the neighborhood associations would offer additional feedback based on their intervening discussions.

This method is based on the constructive technology assessment (CTA) that has been conducted in the Netherlands since the 1980s[19], which seeks to incorporate citizen input as early as possible in the development of new technologies and systems. In these models, citizens and experts meet to discuss the possible influences of new technologies and the intentions of designers, policy-makers and citizens in implementing these changes. This feedback process recognizes that the citizens of Troy understand their own behavior and that of their neighborhoods in ways that the CWG-C might not.

As the CWG-C proposes changes that influence policy, city planning, and citizen behavior, it will be essential to include citizens and DPW-Sanitation staff in the assessment of this plan.

[19] Schot, J., & Rip, A, “The past and future of constructive technology assessment,” *Technological Forecasting and Social Change* 54, no. 2-3 (1997): 251, accessed January 12, 2013, http://linkinghub.elsevier.com/retrieve/pii/S0040162596001801.

3.1 // CITY CODE

This section outlines the aspects of city code which are either out of date or should be amended in order to fully and correctly incentivise a materials management approach to our municipal solid waste program.

Specific Recommendations

- Amend city recycling code to reflect **source separation** goals.
- Adopt a **Pay-as-you-throw System** (PAYT) for Solid Waste (thereby eliminating the annual, flat fee for recycling) with bin and/or bag standardization.

3.1.1 // Source Separation

The city of Troy, as required by NYS law, has a source separation requirement for all citizens within city code[20]. This code should be updated to reflect the priorities of the city to include options for organic waste separation. Amending the code should only be done once the city has a reasonable structure in place for managing separated organic waste.

Section 234-3.2 (e) Recycling Service Fee, should be updated in accordance with one of the recommendations on "Itemize solid waste costs on tax bills." in Recommendation 2, Education & Enforcement of this report.

Legislative Intent should be updated as follows:

> ***§ 234-1. Legislative intent.***
> *The intent and objective of this chapter is to promote and protect the public health and welfare by regulating the safe collection and disposal of solid waste; to reduce the amount of solid waste transported to solid waste facilities; to recover recyclable **and compostable** materials and deliver them to their final ~~disposal~~**recovery** site; to offer alternative refuse disposal, **recovery** and recycling options; and to encourage participation by the whole community in more efficient solid waste management through a simple and cost-effective recycling **and composting** plan.*

[20] *Preparation and Procedures, City of Troy, NY Code* (2007), § 234-3. http://www.ecode360.com/11130017 (accessed January 12, 2013).

It is important that, beyond the punitive measures for non-compliance outlined in current code, there be systems in place to benefit those who make an active effort to reduce their waste generation. Therefore, we recommend the development of a Pay-as-you-throw system.

3.1.2 // Pay-as-you-throw system

Many municipalities have implemented **pay-as-you-throw (PAYT) systems** in order to encourage composting, recycling and other forms of disposal reduction. The guiding principle of PAYT is that users pay more if they put out more disposals for collection. In this kind of system, users are charged based on the amount of material they throw out, rather than at a flat rate, thereby tying payment to behavior. These programs create a financial incentive to waste less and encourage recycling, composting, source reduction and reuse[21].

As of 2006, 26% of communities in the US used PAYT systems, including 30% of the nation's largest cities. In New York, 42.4% of communities (445 communities) employ PAYT systems[22].

On average, PAYT accounts for a 17% reduction in disposals, of which 5-6% is attributable to recycling, 4-5% to yard waste, and 6% to source reduction efforts such as buying in bulk, reusing containers, etc[23]. Studies have shown that PAYT is *the single most effective measure that can be taken to increase diversion rates for recycling and yard waste programs*[24].

With the reduction in disposals, PAYT systems can also deliver a reduction in greenhouse gas emissions: EPA models suggest that the reductions seen in many PAYT systems could cut down on 2.1-3.8 million metric tons of carbon equivalents, 7.8-13.3 million metric tons of carbon dioxide equivalents, and 61-109 million MBTU annually[25].

Implementations of PAYT systems vary; some systems charge users by the bag, or offer receptacles of different sizes at different collection prices; still others weigh disposals as they are collected, matching receptacles to users via

[21] Lisa A. Skumatz and David J. Freeman, “Pay as you Throw (PAYT) in the US: 2006 Update and Analyses”, *Skumatz Economic Research Associates*, *Inc.*, Superior CO, (December 2006).
[22] Ibid.
[23] Ibid.
[24] Lisa A. Skumatz, “Nationwide Diversion Rate Study—Quantitative Effects of Program Choices on Recycling and Green Waste Diversion: Beyond Case Studies*”, Skumatz Economic Research Associates, Inc.*, Seattle WA. (1996)
[25] Lisa A. Skumatz and David J. Freeman, “Pay as you Throw (PAYT) in the US: 2006 Update and Analyses”, *Skumatz Economic Research Associates*, *Inc.*, Superior CO, (December 2006).

electronic labels on bins. The easiest system to implement is a hybrid system that uses current collection and billing methods, but sets a cap on the amount of disposals allowed, and charges extra fees based on a bag, tag, or sticker system.

While the efficient operation of PAYT systems depends on new costs such as equipment, administration, education and enforcement, studies have found no significant increase in per-household collection costs with PAYT implementation.[26]

Utica, NY, has used a hybrid PAYT system that has been administrated by the Oneida-Herkimer Solid Waste Authority since 1988. In this system, homeowners are charged an annual fee of $79 for a single-family house, $158 for a two-family house, and $237 for three or more families in a residence. Refuse is only collected in two sizes of blue bags: a 30-gallon bag that costs $1.55, and a 15-gallon bag that costs $0.95. The bags are sold at 31 retail outlets in Utica[27].

City ordinances establishing this system can be found in the Utica city code, Sec. 1-22-33 through 1-22-34. The CWG-C recommends adopting similar codes requiring:

1. That rubbish set out for public collection be placed and sealed in a city refuse bag. [or city-issued, standard container]
2. That the city establishes a solid waste user fee for the public collection and disposal of solid waste from properties located within the city.
3. That the solid waste user fee shall be charged and collected by the sale of city refuse bags at a price to be determined by ordinance. For bulk and other items not reasonably capable of being placed within a city refuse bag, the rates for collection and disposal of such items shall be as determined by ordinance.
4. That a rate for large container services be negotiated with public agencies within the city.
5. And that the city may direct its employees or contractors to collect and dispose of garbage, refuse, or bulk which has been improperly prepared, stored or disposed of as required by the provisions of law, establish by regulation appropriate charges for such services, and promptly bill the owner for such services.

[26] Ibid.
[27] More information about the Utica system can be found at http://www.ohswa.org/garbage/city-of-utica-residents/

The CWG-C recognizes that the factors that contribute to a low recycling rate in Troy (low homeownership rates, high turnover rate in renters, high student population, etc.) will make the implementation of PAYT difficult. A PAYT system, as it exists elsewhere, might be rendered moot through a successful enforcement and education program, like what is currently in place in New York City.

3.2 // EDUCATION & ENFORCEMENT

As a switch to municipal composting will require Troy citizens to change their behavior with respect to solid waste, significant efforts will be necessary to make clear the new disposal requirements and the reasoning behind them. In their survey of PAYT systems in the U.S., waste consultants Skumatz and associates found that education was indispensable for ensuring change[28].

This education should take place at multiple levels. The rules for waste disposal will need to be made clear to all residents and property owners, through information available on the Troy website, information packets and refuse guidelines, and through the Department of Sanitation. The reasoning behind these rules will also need to be made clear, through a broad-based public education campaign. Reducing waste should be a value shared by all Troy citizens.

Strong enforcement will also be necessary to prevent illegal dumping and improper disposal. Diligent enforcement of the new disposal regulations by DPW staff will help to ensure that the new regulations on disposal generate positive change in the waste stream.

Specific Recommendations:

- Create a broad-based **public education campaign on recycling and composting**, including changes to the City of Troy website, fliers, signage and other media.
- **Improve source separation in public spaces** by providing visible public recycling bins on sidewalks and in all city and state government buildings.
- **Itemize** solid waste **costs** on tax bills.
- **Enforce recycling and waste policies** at curbside collection.

3.2.1 // Public Education Campaign on Recycling and Composting

Education is vital for implementing any new waste management program. An education campaign should explain the new system not just in terms of how to compost, but also why a composting program is being implemented. The EPA SERA report advises that education programs "address the problem solved by the new system, how the system works, opportunities to reduce waste, and where to get more information."[29]

[28] Lisa A. Skumatz and David J. Freeman, "Pay as you Throw (PAYT) in the US: 2006 Update and Analyses", *Skumatz Economic Research Associates*, *Inc.*, Superior CO, (December 2006).
[29] Ibid.

The recycling page on the City of Troy website currently offers information about the single-stream recycling program[30]. The CWG-C recommends expanding this information to include images, information in Spanish, details about the operation of single-stream facilities, instructions on obtaining blue recycling bins, and a reference explaining recycling collection days and times by neighborhood. The information included on this page should cover not just what can be recycled and when, but how those materials get used and why recycling is important. The CWG-C further recommends an additional page on food scraps collection, with a similar array of resources and a description of the composting process. This website can include instructions for backyard composting and contacts for neighborhood composting groups.

Education beyond the website should take place through informational mailers and doorknob hangers that explain the new source separation system and the reasoning behind it, posters, stickers, and magnets that guide citizens through the source separation process, and tabling and outreach at public events.

This education campaign can draw on a variety of networks and resources that already exist in Troy: neighborhood associations (TNAC), educational institutions (RPI, Sage, HVCC, Troy's public and private schools, etc.) and student organizations (Green Greeks, Sustainability Task Force, THS's Environmental Club, etc.), community groups and organizations (Unity House, Transition Troy, etc.), and a culture of community events (TNO, TWFM) offer channels for distributing information about composting. The vibrant community of artists (Design-it-Together, No Name Design), media-makers (Sanctuary for Independent Media, RPI's E-Arts Department), and student power (Student Sustainability Task Force, Public Service Interns, Art Community and Technology Class) in Troy offer resources for communicating the details of a new composting program in order to raise awarenss and participation. Using resources like these, Troy could produce, distribute, and make available literature and media about composting on the individual, neighborhood, and municipal scales. These education campaigns and the design of information can fall under the auspices of a **Recycling and Composting Coordinator**.

[30] "Recycling," City of Troy, NY, accessed January 12, 2013, http://troyny.gov/Departments/PublicWorks/Recycling.aspx

Figure 3.2.1: Examples of Transit Ads in Alameda County, CA to promote their municipal composting ("food scrap recycling") program.

Figure 3.2.2: Example of Billboard Ads in Alameda County, CA.

How to sort your garbage in S.F.

Blue cart *(recycling)*

Paper	Glass, aluminum	Plastic
Cardboard, cereal boxes (without lining), computer paper, paper egg cartons, envelopes (windows OK), junk mail, brochures, magazines, newspapers, phone books.	Aluminum cans, aluminum foil, glass bottles and jars, including metal caps and lids.	All plastic bottles, all plastic tubs and lids, plastic containers and clamshells, plastic cups and plates.

Green cart *(compost)*

Paper	Food	Plants
Waxed cardboard, napkins, paper towels, paper, plates, paper milk cartons, tea bags, coffee grounds and filters.	Fruit, vegetables, meat, poultry, seafood, bones, rice, beans, pasta, bread, cheese, eggshells.	Flower trimmings, tree trimmings, leaves, grass, brush and weeds.

Black cart *(landfill)*

Ceramic dishes and cups, coat hangers, lightbulbs (no fluorescents), mirrors, plastic bags, plastic straws, plastic wrap, potato chip bags, Styrofoam packaging, window glass.

Source: San Francisco Department of the Environment

Figure 3.2.3: Text-only guide to materials for San Francisco's source separation system.

3.2.2 // Improved Public Source Separation

By placing recycling bins alongside waste bins in public spaces, such as sidewalks and government buildings, the City of Troy can make it clear that source separation is simple to accomplish and that citizens *should* be recycling, no matter where they are.

Sidewalk recycling bins are in use in many U.S. cities, including Albany, NY, New York City, NY, Great Barrington, MA, Cleveland, OH, and many others. In Great Barrington, artists used found materials to sculpt new bins in a collaboration between the town, a community group of artists, and the Center for Ecological Technology. Fifteen local artists were chosen to create the bins that are strategically placed along Main and Railroad Streets, the main commercial corridors. Along similar lines, the City of Troy could engage with its vibrant arts community to produce visible, artistic recycling bins for public use.

The CWG-C recommends that government buildings and offices in Troy lead recycling efforts by example by making available visible, accessible receptacles with informative, bilingual and non-verbal signage.

Figure 3.2.4: City of Albany's custom municipal recycling container

Figure 3.2.5: Public recycling bins in Great Barrington, MA

3.2.3 // Itemize solid waste costs on tax bills or separation into a unified fee

It is important for residents to understand their financial stake in the recycling and composting system. Currently, homeowners see no fee for the collection of solid waste, and a $29 yearly fee for recycling collection, while the city spends more than $80 per household per year to dump municipal garbage, and far more to pay for trash pickup and management equipment. These hidden costs result in people not being aware that their actions (failing to separate their waste stream) have real financial implications on themselves and their neighbors. The CWG-C recommends, as part of the implementation of a pay-as-you-throw (PAYT) system (and prior to it), the itemization of these costs in a method that makes them more transparent to residents. Methods for itemization are detailed in table 3.2.1.

The hidden cost for disposal results in a large percentage of residents believing that garbage collection is free. They are unaware that the cost of trash collection and disposal is included in the property tax. It is difficult for residents to understand the potential economic benefits of recycling without seeing the direct impact on their taxes

3.2.4 // Enforcement

Enforcement is necessary to make sure that the costs of noncompliance with recycling code are not borne by the taxpayers at large, but by those who do not comply with local and state standards for waste separation and recovery. Adopting a PAYT system will require new forms of enforcement, as residents may consider avoiding disposal costs by dumping trash illegally. The CWG-C recommends empowering DPW sanitation staff and other Municipal employees to issue recycling and trash violations in order to enforce city code.

City Code, Section 234-5 states that "failure to comply with this chapter [outlining waste separation requirements for the city recycling program] by any person or firm shall be deemed a violation punishable by a fine no greater than $250 or imprisonment no longer than 15 days, or both". Compliance with this has not been enforced except in the most egregious of cases in recent years. Therefore the CWG-C recommends phasing in increased enforcement, starting with probationary warnings and followed up with fines of between $50 and $100. While fines should not be seen as a source of income, they should be used to pay for the additional waste disposal costs incurred due to low recycling and composting rates.

Table 3.2.1: Itemization of solid waste bills.

	Details	Pros	Cons
Itemization of Trash Fees on Tax Bills	Delineating the average cost of waste disposal per household on each tax bill.	Inexpensive, simple	Builds awareness, but does not empower residents to do anything to reduce their burden.
Unified Waste Disposal and Reclamation Fee.	Adding an approximation of annual garbage disposal costs to each household's recycling fee, thereby creating a more balanced view of the waste system	Inexpensive and simple. Sets the stage for changing fee structures and is therefore a better lead in to PAYT systems than keeping it on the tax bill.	Builds awareness, but does not empower residents to do anything to reduce their burden.
Pay-per-bag fee structure	Residents must buy specially marked trash bags or marking tags in order to throw away garbage. The price of these bags/tags is set by the cost of managing that quantity of waste and the fee goes directly to the city to pay for collection and disposal.	Easy to understand, creates clear cost incentives for residents to reduce their waste generation, is the most adaptable of the PAYT systems because it does not require bin size changes as residents change their waste volume, has low up-front costs for the city as it does not require new bins or trucks	This system is complicated to create, requiring collaboration with local vendors, or city-managed distribution of bags/tags. There are also risks with regard to compliance as it may be difficult to track down and enforce payment if people illegally dump garbage in unmarked bags.
Pay by volume of bin	Residents all pay an averaged waste disposal fee in the form of a charge for a bin. If they consistently do not fill the bin, they may apply for a smaller bin, with a lower associated fee. If they constantly over-flow their bin, they may be required to upgrade to a larger or second bin.	Has been successful in San Francisco, errs on the side of collecting more revenue if residents are not proactive in reducing their collection needs. Less complicated structure on the residents' side (no approved bags required).	High up-front set up costs for the city to purchase and distribute new bins. Does not scale fees to fit consumers as quickly or easily as a bag or garbage by-the-pound system.
Garbage by the pound	Residents are charged by the pound for waste they produce. This involves marked bins, identifying tags, and on-truck scales that measure the weight of garbage produced by each household.	Most accurate and simple system for consumers as it charges them directly for what they produce in the same way that the city is charged. This is analogous to a water metering system and is therefore easy to understand.	High up-front costs to set up bins and trucks to weigh and record waste produced by each household, may not affect behavior as directly as the bag-fee structure. Requires more sanitation staff as weighing and recording amounts slows current collection routine.

With a bag tag or encoded bin system (implemented as part of PAYT) DPW Sanitation staff can more efficiently cite and fine violations of recycling and trash disposal codes using digital technologies similar to the handheld computers used for ticketing parking violations in New York City. Traffic agents with these devices may be emboldened by the precision of their equipment: "the city has furnished all traffic enforcement agents with handheld computers that spit out more tickets in less time and with fewer errors than handwritten tickets. The device scans a vehicle's registration sticker for some information and the agent, using a stylus, fills in the rest"[31]. Similarly, modern tagging and database technology can enable city workers, at relatively low cost and time, to issue warnings and fines to households which are not complying by source separation law.

It is the recommendation of the CWG-C that a tiered system be created that starts with an educational warning, in case residents are not currently aware of their responsibilities under city code, then begins charging those who are consistently in violation. One major challenge in Troy will be determining the responsible party where the bill-holder is not present. The landlord database should be made available for this purpose.

[31] Jo Craven McGinty and Ralph Blumenthal, "Adding to the City's Coffers, One Ticket at a Time," *The New York Times*, November 27, 2008, http://www.nytimes.com/2008/11/28/nyregion/28parking.html?pagewanted=all.

3.3 // RECYCLING AND COMPOSTING COORDINATOR

> "RECYCLING COORDINATOR That person appointed by the Mayor to coordinate the recycling program, to arrange for the marketing and/or appropriate disposal of collected items, and to perform educational and informational functions."
> -Troy City Code, Section 234-2

Currently, the duties of Recycling Coordinator, as defined in City Code (above) fall onto the already-fulltime Deputy Commissioner of Public Works, who is also the City's Solid Waste Manager. The CWG-C recommends that the City Council appoint a separate Recycling and Composting Coordinator to handle these duties, so as to make recycling and composting high priorities with increased capacity to handle recommended initiatives.

The DEC is authorized under the State Assistance Programs for Waste Reduction, Recycling and Household Hazardous Waste Programs to provide state assistance for Recycling Coordinator salaries and for public education programs conducted by municipalities[32]. This funding can help expand local recycling and waste reduction programs and increase participation.

Specific Recommendation

- Hire a **Recycling and Composting Coordinator** to oversee and expand education, enforcement, and materials recycled and reused, paid for by DEC match and savings from decreased tipping expenses.

3.3.1 // Recycling and Composting Coordinator

The "Improving Recycling in Troy" report put together by Troy residents in 2000 offers specific recommendations for improving the diversion rate of recyclable materials. Among these recommendations is the hiring of a Recycling Coordinator for the City. In their report, it is the duty of the Recycling Cordinator to "oversee the program, conduct community outreach, ensure quality control and enforcement, and coordinate research and use of recycling and composting markets. This position is critical to improving the recycling system in Troy. Having a manager whose only concern is improving and running the recycling program

[32] "State Assistance Programs for Waste Reduction, Recycling and Household Hazardous Waste Programs." New Yord Department of Environmental Conservation, accessed January 12, 2013, http://www.dec.ny.gov/pubs/4776.html

will increase its efficiency and improve the City's overall recycling rate"[33].

Many municipalities and counties in this region, including Albany, Schenectady, Bethlehem, Colonie and Coeymans, as well as Delaware and Columbia Counties, have city officials whose full-time job is the oversight and promotion of recycling operations. The CWG-C recommends hiring such an official, and expanding the job description to include oversight of the composting system. A Recycling and Composting Coordinator will be responsible for:

- Monitoring recycling and composting programs.
- Public education (preparation and dissemination of materials, answering questions, promoting the benefits of waste reduction, reuse, and recycling, etc.). Increased community interaction will also help identify and resolve problem areas.
- Working to maximize waste reduction, reuse, recycling and composting opportunities. This can provide a competitive advantage to businesses by helping them save money through reduced purchases, increased efficiency, greater energy conservation and a reduction in the amount of waste that needs collection and disposal.
- Working to enhance, expand and create markets for recyclables and compost from municipal organics.

An effective Recycling and Composting Coordinator will cover the position's salary by increasing the recycling rate and revenues, and reducing tax dollars spent on landfill tipping fees[34].

[33] Steve Breyman et al. *Improving Recycling in Troy: Analysis and Recommendations.* June 2000, http://nys.greens.org/greencities/Waste/RecyclingAnalysis.htm
[34] Ibid.

3.4 // FACILITY, FARMS, AND BUSINESSES

An official audit of Troy's waste stream has not been conducted, but based on state averages and total tonnage of waste, the CWG-C estimates that residents and commercial operators using DPW collection produce roughly 5,000 tons of organic (food and yard) waste per year[35][36][37]. A full audit of private, commercial operations was not possible or within the scope of this report, but it is likely that several thousand more tons of waste could be collected from these operations.

Neighborhood-scale systems will play an important role in Troy's composting network in terms of providing gardens with fertilizer and educating residents. However, in order to manage organic material on the scale of thousands of tons per year with the potential to collaborate with other municipalities and commercial operators, a large-scale, DEC-permitted facility will be necessary.

Implementing a large-scale food waste diversion program requires the development of the infrastructure needed to collect and process the material. There are no facilities in Rensselaer County that actively compost food waste or co-compost food and yard waste at this time. In developing a pilot composting program, the City will need to consider:

- Location and Scale
- Facility permitting
- Acquisition of feedstock
- Management/monitoring of composting operation
- Health and Safety
- Cost
- and Other site-specific considerations.

In addition, the collection of the organic material would need to be evaluated for commercial sectors and would include, but not be limited to collection container options and compatibility with haulers' current collection vehicles, public education, and cost[38].

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[35] "Beyond Waste: A Sustainable Materials Management Strategy for New York State," New York Department of Environmental Conservation, las modified December 27, 2010, http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf.

[36] New York. State Department of Environmental Conservation, Division of Materials Management. Annual Report Form – Planning Unit Recycling Report: 2010, City of Troy. Troy, 2010.

[37] Estimate obtained as product of tonnage of Troy's waste stream by State average organic materials content.

[38] "Food Waste Composting Pilot Project," Ulster County Resource Recovery Agency, accessed January 12, 2013, http://www.ucrra.org/rra-boardmem/info/UCRRA%20Composting%20Business%20Plan.pdf

Based upon site visits, consulting experts, an assessment of needs and costs, and other research, ***the CWG-C recommends the development of a large-scale, commercial composting facility in Troy that utilizes static-aeration methods of processing organic materials including yard and food waste to produce heat (for agricultural/industrial uses), and the marketable products of compost, top soil, and mulch.*** While anaerobic digestion facilities are on the rise as an option for managing organic material and producing energy, the initial costs of AD facilities, as well as uncertainty as to the use of digestate (a sludge product of the AD process) for use in creating compost for agricultural purpose, make development of said facilities prohibitive for the City of Troy at this time. There is potential, however, to partner with the Rensselaer County Waste Water Treatment Plant (WWTP), currently re-tooling its digestion technology, to co-compost biosolids and food waste in a manner similar to Delaware County's Solid Waste Management Center. There are numerous potential commercial partners looking to provide expertise in the designing, building, and/or operating of a large-scale energy-generating facility in Troy.

Specific Recommendations:

- Build a **composting facility** within or near Troy for end-use processing of commercial and institutional-scale organic material.
- Alternately (or in addition), contract with **local farms**, **facilities, and businesses** that are currently composting at large scales.

3.4.1 // Central Composting/Material Recovery Facility

Currently, there are no large-scale facilities in Rensselaer County that actively compost post-consumer food waste or co-compost food and yard waste. Delaware County, east of Ulster County, owns and operates an MSW co-composting facility near Walton, New York. Schenectady County's Yard Waste Composting Facility began a pilot program in October to collect pre-consumer food scraps from one hospital and two colleges. Large-scale food waste or organics composting facilities are typically more economically viable in locations like Troy that have high tipping fees for MSW disposal (>$50/ton), whose construction and/or operations are subsidized in some way, or where there are specific long-term economic considerations that lower the present worth cost over a 20-year planning period.[39]

[39] Ibid.

Table 3.4.1: Options, Pros, & Cons for Commercial-Scale Organic Material Management Facility

	Details	Pros	Cons
Haul Organic Material to a Local Farm or Composting Facility	Contract with one or more local farms or facilities to accept food waste.	Processing handled off-site; no odor concerns to city residents; lowest upfront cost for the city	Hauling distance (cost of transportation); cost of tipping fees; only one operation currently accepting food waste in the region; few local jobs created; unfixed costs (gas, tipping fees)
Build and operate a windrow composting facility within Troy	Build a large, open pad and use basic city equipment to pile and turn waste materials. Some equipment purchase may be necessary, including a system for screening finished compost, front-loaders, chippers.	Least expensive system (investment and operating costs); market exists for finished compost product, mulch, and top soil; creates local jobs and businesses; revenue from tipping fees from commercial haulers and other municipalities	Slightly higher potential for odors affecting neighboring properties; less contained in flood and rain events; higher labor needs and costs as compared to static aeration piles; does not recover any energy from the waste material
Build and operate a covered, static aeration pile system within Troy	Build a large, enclosed warehouse building with static aeration bays, then dump waste material inside and pump air through the piles to aerate. Excess heated air can be recovered to reduce heating costs in nearby facilities.	Allows for heat recovery; Less costly system (investment and operating costs); eliminates odor and aesthetic issues with a composting facility; market exists for finished compost product, mulch, and top soil; creates local jobs and businesses; revenue from tipping fees from commercial haulers and other municipalities	Higher upfront cost than an open-air windrow facility; higher operational costs (energy inputs, building maintenance); higher labor needs and costs
Build and operate an anaerobic digestion facility within Troy	Build an in-vessel anaerobic digestion facility consisting of large digestion tanks and gas-processing equipment to either generate heat or electricity on site, or be compressed into LNG for use in city vehicles or for sale on energy grid.	Produces energy which can be used to offset costs and eventually generate revenue; there may be grants available to develop and implement energy generation systems.	Very high upfront costs; limited use for sludge digestate and thus not as certain to produce usable organic material for fertilizer, etc.; high operational costs (energy, insurance, maintenance); requires consistent feedstock

The CWG-C recommends that the City of Troy create and release a request for proposals (RFP) for soliciting professional design services for development, installation, start-up, and commissioning of an in-vessel static aeration composting system. A centralized windrow or static aeration composting facility could streamline collection and realize the largest cost savings without the massive upfront investments required by in-vessel and anaerobic digestion facilities. While such facilities exist in open-air locations, within the city limits, it is recommended that the city build a facility inside of a warehouse on paved land in order to reduce odor, vermin, and runoff problems. A facility could begin as a small-scale windrow system as collection grows. As the feedstock volume increases, cost savings can be applied to build a covered facility. This tiered development strategy would reduce overall financial risk, though would not maximize organic waste collection upfront. Funding to build an in-vessel facility outright would be preferable. See table 3.4.1 comparing facility options.

Once a system of collecting and processing waste has been developed, the CWG-C further recommends the exploration of anaerobic digestion options for energy production, while recognizing the aforementioned problems.

Organizational Structure

There are several possible organizational structures for a composting facility capable of handling this volume of food waste: a privately-run site, contracted by the City (either inside our outside of the city), a city-operated site, or a site operated by a Troy-based Materials Management Authority. Any of these would work well, and the best path is determined by political and financial realities. The CWG-C recommends that the City maintain control of the system because it has the potential to produce jobs for Troy residents, and expand to generate revenue from tipping fees from private haulers and/or other municipalities. The CWG-C also recommends the exploration of the formation of Troy's own Materials Management Authority, perhaps by reauthorizing and amending the Greater Troy Area Solid Waste Management Authority, decomissioned August 16, 2012[40]. State-commissioned authorities can raise their own bonds and have certain eminent domain rights, which would allow Troy to have far greater budgetary flexibility to develop and run a composting facility.

Location

A site for a composting facility should be large enough to process the amount of organic materials estimated to be collected in Troy and partnering communities.

[40] Governor's Press Office, "Governor Cuomo Reduces Size of Government by Signing Bills to Eliminate More Than 120 Inactive Local Authorities and Agencies," New York State Governor's Press Release, August 16, 2012.

It should furthermore be in close proximity to Troy's commercial institutions and schools to obviate long trips for organics delivery. Proximity to multiple forms of transportation are key for potentially collecting feedstock from other municipalities and selling bulk product to larger, farther markets. A site should preferably paved for ease of processing. While flooding and increasing sea levels should be seriously considered, the South Troy Industrial Area provides a potentially ideal location for achieving these goals:

- Available acreage
- Immediately off of the I-787 highway ramp
- Access to functioning railroad lines currently in commercial use
- Access to river barges with potential for building loading, commercial pier
- Close proximity to current transfer station
- Close proximity to Rensselaer County Sewer District Wastewater Treatment Plant for potential co-composting operations
- Zoned for commercial use
- Large hill and tree buffer separates it from the nearest residential sites.
- Limited uses for brownfield designated areas.

Figure 3.4.1: The Chevron Site

The southernmost section of the South Troy Industrial Area is a 5.62 acre site currently owned by Chevron. The Commissioner of Planning presented an option to negotiate with Chevron to let the City, via the LDC, assume ownership. The soil is contaminated, but the impact can be mitigated by capping the site by paving, for example. The DEC facility permitting process includes thorough

assessments to ensure non-contamination. It is our recommendation that the city begin negotiations with Chevron, the DEC, and any other necessary parties to discuss the sealing of the site and transfer to city ownership. If possible, it is our recommendation that the deal include building the foundation for a warehouse or in-vessel facility

Yard Waste:

There are nine composting facilities operating in the Capital Region that have solid waste facility permits from NYSDEC. These include two biosolids (sewage sludge) and six yard waste composting facilities, and one facility, CTI Agricycle in Washington County, which is permitted to accept both food and yard waste. Certain very small composting facilities are exempted from NYSDEC permitting requirements if they accept less than 3,000 cubic yards per year of animal manure/bedding or yard waste, alone or in combination. Other small composting facilities do not need permits, but must register with NYSDEC, if they accept more than 3,000, but less than 10,000, cubic yards of yard waste, or more than 1,000 cubic yards of source separated organic waste[41].

The Alamo, Troy's current yard waste recycling facility, has a limited capacity at 3,000 cubic yards at a time on site. It is a major investment to increase capacity for holding material for more than 72 hours and/or for over 3,000 cy as an increase requires a registered DEC permit.[42]

With a large, commercial-scale facility in Troy, the city can expand yard waste collection and use the yard waste (carbonaceous materials) as a feedstock source for static aeration composting. Also, the increase of backyard and neighborhood-scale composting will increase the demand for carbonaceous materials, particularly wood chips. The Alamo currently accepts and chips (to a fine mulching consistency) a mix of yard waste from residences and city-owned properties. This yard waste "compost" is not food grade as it contains contaminants of non-organic materials as well as chemicals from landscaping treatments. The Commissioner of DPW agreed to make available woodchips from trees separate from general yard waste for use in producing food-grade compost.

[41] “Capital Region Sustainability Plan: Draft Plan Available for Review,” Cleaner Greener Communities Capital Region Consortium, last modified December 8, 2012, http://sustainablecapitalregion.org/full-report

[42] Bill Chamberlain (Solid Waste Coordinator) in discussion with Abby Lublin and Anasha Cummings, November 2012.

Examples:

Yard Waste and Food Scraps Composting Facility. Technology: Static Windrows. The **Schenectady County** Soil and Water Conservation District's **Composting** and Recycling Facility has been in operation since 1989. It accepts approximately 56,400 cubic yards of yard waste from municipalities and private haulers every year, and saves the county an average of $90,000 in tipping fees per year. In October of 2012 the facility began accepting food scraps from Ellis Hospital and Schenectady County Community College[43][44].

Figure 3.4.1: Cayuga provides a food waste collection and composting service to local businesses and residents to divert their food scraps from the waste stream and turn it into high quality compost.

Cayuga county compost bins

Monitoring compost at Cayuga facility

[43] Notes from a visit to the facility can be found here: http://troycompost.wikispaces.com/file/view/Schenectady County Composting and Recycling Facility Visit.docx/

[44] A presentation of facility start-up, operating, and equipment costs, and annual revenue from tipping fees, residential permits, and products: http://cwmi.css.cornell.edu/Edwards.pdf

Figure 3.4.2: Schenectady County Composting and Recycling Facility.

	*Shredding and sifting equipment.*
	*Windrow composting of yard waste and food scraps.*
	*Finished, screened compost ready for packaging.*

Figure 3.4.3: Delaware County Solid Waste Management Center. A Municipal Solid Waste and Biosolids Co-Composting Facility. Technology: Anerobic Digestion and In-Vessel Aeration Compost Curing System

Delaware County Solid Waste Management Center
Walton, New York
Project Description
The County's Department of Public Works completed an Integrated Solid Waste Management Plan for Delaware County. The goal of the solid waste management strategy was to significantly increase recycling and beneficial reuse strategies. As part of their Integrated Solid Waste Management Planning efforts, the County became interested and began evaluating options for municipal solid waste composting as a way to achieve rather aggressive recycling goals.

A draft Request for Proposal for the procurement of a municipal solid waste (MSW) composting technology was developed for public review and discussion. The County officially requested bids for MSW composting technology under New York State General Municipal Law 120W.

Project Features
Through GHD's construction company, S&W Services, Inc., a joint venture partnership was developed with Conporec, Inc. of Quebec, Canada to design and build a municipal solid waste and biosolids co-composting facility for 35,000 tons/year of MSW and 65,000 tons/year of biosolids.
The project consisted of: a fully enclosed receiving area for MSW and biosolids; a rotating drum bioreactor (48 meters long); mechanical separation and conveyance systems; automated window systems for curing compost; and an extensive odor control/air handling system.

3.4.2 // Partnering with Local Farms or Composting Operations

A less expensive (with no revenue generation) option is for Troy to partner with local farms and/or composting facilities to turn organic materials into compost or use them for energy generation in already-extant anaerobic digestors. The State University of New York (SUNY) New Paltz campus and Vassar College compost some yard waste in static piles and transport food waste to McEnroe Farms where it is co-composted with yard waste and manure[45].

Potential Partner Facilities within 40 miles of Troy include:

Schenectady County Compost Facility: Glenville, NY (Schenectady County)
Operated by the Schenectady County Soil and Water Conservation District, 20 miles from Troy. The yard waste composting facility is accepting food waste as of October 2012 from Ellis Hospital, Schenectady County Community College, and county residents with permits. Jackie Baldwin at RPI/Sodexo has negotiated a contract for an independent hauler to bring RPI's source-separated food scraps from four dining hall kitchens to Schenectady's facility.

CTI AGRI-Cycle, LLC: Cambridge, NY (Washington County)
AGRI-Cycle is a private, composting operation 30+ miles from Troy in Cambridge, NY. The operation accepts food processing waste, manure, and yard waste from many sources, including municipalities.

Herrington Farms, Inc.: Troy, NY (Rensselaer County)
Herrington Farms processes cow bedding and manure and yard waste into salable compost, used by many gardeners in the region. Herrington Farms does not currently accept food waste from municipalities, but there are opportunities to partner with the farm for future development.

Booth's Blend: Greenwich, NY (Washington County)
Similar operation to that of Herrington Farms. Compost made from cow manure and carbonaceous feedstock. Does not currently accept food waste, but there are opportunities to develop a partnership.

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[45] "Food Waste Composting Pilot Project," Ulster County Resource Recovery Agency, accessed January 12, 2013, http://www.ucrra.org/rra-boardmem/info/UCRRA%20Composting%20Business%20Plan.pdf

Watervliet Organic Waste: Watervliet, NY (Albany County)
The City or Watervliet currently collects food scraps from 51 households to be composted at a site within city limits. Plans to expand their composting facility do not currently include accepting waste from other municipalities, but a paternership is conceivable.

POSSIBLE CONSULTANTS/PARTNERS:

Peter Moon: O2 Compost: http://www.o2compost.com/

Glen Knecht: NY Sales Manager, Casella Organics, (207) 604-4497 (http://casellaorganics.com/)

Tom Sanford: District Manager, Rensselaer County Soil & Water Conservation District. tom.sanford@ny.nacdnet.net or tsanford@taconic.net (518) 271-1740/1764

Jean Bonhotal: Associate Director, Cornell Waste Management Institute. cwmi@cornell.edu (607) 255-8444 (http://cwmi.css.cornell.edu/)

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3.5 // NEIGHBORHOOD SCALE COMPOSTING

The CWG-C recommends that the City support composting at multiple scales, through multiple methods, encouraging composting in neighborhoods and households and through a farmers market drop-off, in addition to implementing citywide pickup. In doing so, the City could reduce the amount of waste going to landfill using resources and systems that are already in place. Initiatives at the neighborhood scale will encourage disposals reduction at minimal cost, saving money on tipping fees. Such a decentralized system provides residents with many options for how to reduce fees in a PAYT system or to avoid fines for disposal noncompliance.

Specific Recommendations

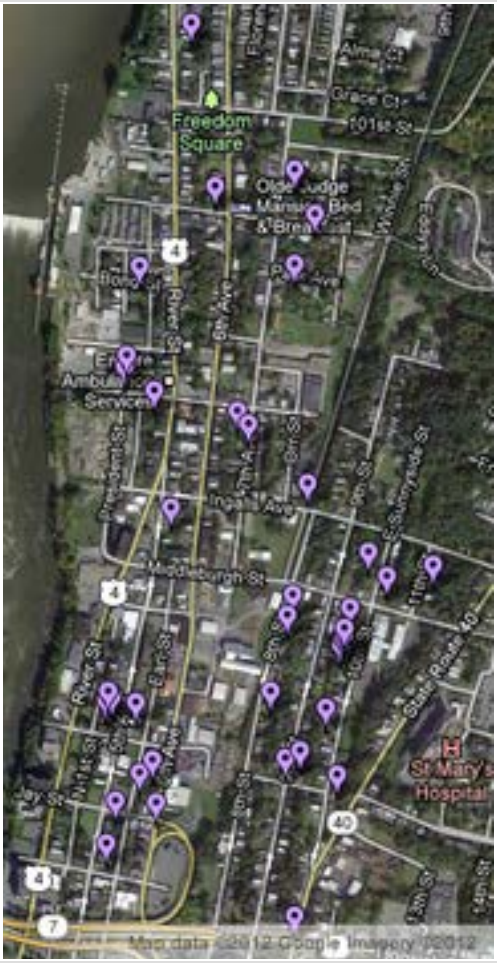
- Transfer specific, city-owned, **vacant lots** to neighborhood organizations for **neighborhood-scale compost piles**
- Encourage **organics drop-off** at the Troy Waterfront Farmers Market and participating Capital District Community Gardens' sites by **providing information** on the City of Troy website
- Partner with and promote **local compost and agriculture organizations** running collection and composting projects
- Provide **resources for backyard composting**, such as guidelines and compost bins.

3.5.1 // Vacant Lots

The CWG-C recommends that the city support neighborhood-scale composting by transferring ownership of specific city-owned vacant lots to neighborhood associations and community organizations for self-managed composting. These lots should be strategically located in or near gardens (public and private) so as to help close the resource loop and decrease the travel between compost pile and end usage. The City of Troy website can provide a directory of compost piles open to receiving household organics. Access to composting sites will be essential when the City implements a PAYT system or strongly enforces mandatory recycling and composting, as residents will have a financial incentive to compost their food scraps. These sites will require frequent visits by the Recycling and Composting Coordinator to ensure code compliance. Current code regarding backyard composting practices requires a 5 foot setback from property lines in residential zones, and a 3-foot setback elsewhere, out of concern for rodents and odor[46].

[46] Len Welcome (Office of the City Engineer, Troy DPW) email to Sheree CA, January 2013.

Figure 3.4.1: Map of city-owned vacant lots in North Central Troy as of November 2012



The City of Troy currently (as of Dec 2012) owns 50 vacant lots. The CWG-C recommends working with TNAC to identify neighborhood associations and community groups that will assume ownership and responsibility of strategic lots on which to build and maintain compost bins. These lots should be located in close proximity to existing gardens and/or landscaping, storm-water management, or erosion prevention needs.

Composting facilities/sites that accept no more than 1,000 cubic yards of source-separated organic waste per year are exempted from the NYS DEC's permitting requirement. (NYS Environmental Conservation Law 360-5.3. http://www.dec.ny.gov/regs/4411.html)

Figure 3.5.2: Building a neighborhood compost bin

	*Bin Building at the Food Cycle lot in North Central Troy*
	*Lining the Bin with Hay at the Food Cycle lot in North Central Troy*
	*Transition Troy building a compost pile at Oakwood Community Center*

Similar community-run composting systems are in place elsewhere. At the Action Communiterre Garden in Montreal, Quebec, neighbors wishing to drop off food scraps pay an annual $5 "key" fee. The fee covers the cost of paying compost supervisors who check and maintain all Action Communiterre bins. Gardeners apply finished compost from the bins to the adjacent gardens to amend the soil with the nutrient-rich fertilizer[47].

The Radix Center's Community Compost Initiative (CCI) in Albany provides organics containers for $20, weekly organics pickup at $15 per month for one container, and $5 per month for each additional container. Each week, customers leave out their containers and the CCI collects the contents to be composted at the Radix Center[48].

Revolution Compost in Burlington, Vermont provides a similar service, providing bicycle pickup of organics material from households and businesses, composting them at Green Mountain Compost[49]. See figure 3.5.3 for images of these systems.

A similar service business is in the formative stage as a collaborative effort between Troy Bike Rescue and Collard City Growers in North Central Troy. While the compost and garden sites and TBR headquarters are located in North Central, Food Cycle will be a service offered to residents and businesses throughout the City of Troy. Food Cycle anticipates launching with its first round of clients in the Spring of 2013. Initial funding for beginning infrastructure of Food Cycle was realized through an online crowd-sourcing campaign completed in the summer of 2012.

[47] For more information see the Action Communiterre website: http://www.actioncommuniterre.qc.ca/en/home
[48] Fore more information see the Radix Center website: http://radixcenter.org/231-2/
[49] For more information see the One Revolution website: www.onevt.com

Figure 3.5.3: Community-based composting systems

	*3-Bin System at an Action Communiterre Garden, Montreal, Quebec*
	*Compost Bins at Radix Center's Community Compost Initiative, Albany, NY*
	*Revolution Compost, Burlington, VT Member-owned, year-round organic material pick-up by bicycle.*

3.5.2 // Organics Drop-Offs

The Troy Waterfront Farmers Market is in support of including an organics drop-off station at the weekly farmers market. The collected materials could then be taken to local gardens or composting facilities, or to local farms. By encouraging Market shoppers to bring their food scraps to the market and collecting food waste generated at the market itself, this system could collect organic materials at a minimal cost and using minimal labor. Compostable materials could be collected from participating vendors as well.

Community groups and garden/compost organizations, such as the Green Greeks and Transition Troy, could work together in orchestrating this weekly or monthly effort. A farmers market drop-off site will create a networking and education opportunity as well. The CWG-C recommends that the City include information on a farmers market drop-off station on the website and in publicly available municipal solid waste information.

Similar farmers market drop-off systems have been in place in New York City starting as early as 1993. Currently, the NYC Compost Project Local Organics Recovery Program (ORP) operates 22 greenmarket drop-off sites through BIG!NYC, Earth Matter NY, and the New Amsterdam Market, and the NYC Department of Sanitation facilitates 16 dropoff sites in partnership with GrowNYC[50].

Figure 3.5.4: Greenmarket drop-off

An NYC resident deposits scraps in a DSNY bin at a Green Markets site.

The TWFM would make an optimal site for foodscraps drop-off.

[50] For more information about greenmarket dropoff sites in New York City, see http://www.nyc.gov/html/nycwasteless/html/compost/compostproj_orp_program.shtml#orp

From the six drop-off sites operated by the Western Queens Composting Initiative (a program of BIG!NYC) the organization collects 18,000 pounds of food scraps per month, which they mix with wood chips on-site and distribute to compost sites and community gardens for composting and processing. See figure 3.5.5 for images of this process.

Figure 3.5.5: Western Queens Compost Initiative greenmarket drop-off.

		
WQCI volunteers mix food scraps with food chips before transporting it to composting facilities.	*WQCI volunteers bag up processed food scraps.*	*WQCI volunteers and employees then transport it to community gardens and community compost facilities in Queens.*

3.5.3 // Partnerships

Several community groups and agriculture projects in Troy are equipped to receive and compost residential food scraps. The CWG-C recommends that the City provide information about these composting opportunities on the website and through publicly available municipal solid waste information.

Extant organizations that currently compost and/or provide education on composting include: Capital District Community Gardens, Food Cycle, Transition Troy, and the Cornell Cooperative Extension.

3.5.4 // Backyard Composting

At the household scale, food scraps and yard waste composting is quick to implement and easy to maintain. The CWG-C recommends that the City support the implementation of these systems, by providing guidelines for backyard composting on the Troy website, and selling or distributing compost bins. Advice on setting up this support system could come from Transition Troy's Composting Working Group, CDCG Garden Educators, CCE's Master Composter and Recycler program, Food Cycle participants, and other community members well-

versed in backyard composting. The City can further support backyard and neighborhood-scale composting by making woodchips from tree debris available to citizens at the Alamo, expanding its hours of operation. General residential yard waste has a higher likelihood of contaminants such as foreign objects (litter) or grass clippings from chemically-treated lawns, but is still useful for non-agricultural application. DPW will cooperate in separating trees and their limbs from general yard waste that includes grass clippings and leaves for the purposes of providing woodchips for backyard composting.

Figure 3.5.6: Backyard composting systems.

Trench composting can enrich garden soil with minimal effort

Backyard static piles are easy to construct and maintain.

Some locales offer modern composting devices that make at-home composting simple. For example, the Massachusetts Department of Environmental Protection (MassDEP) makes home composting bins available to cities and towns each year through its recycling equipment grant program.

Two styles of compost bins are available through the MassDEP grant program: Earth Machine and New Age Composter. Both are easy to assemble, rodent-resistent and allow for efficient aerobic composting. They are made from a

minimum of 50 percent post-consumer recycled plastic collected or processed in Massachusetts.

An average household can compost between 500 and 1,000 pounds of organic material each year in one of these bins, producing a rich soil supplement out of material that would otherwise be thrown away[51].

Figure 3.5.7: The two styles of composter available through the MassDEP grant program.

Other sources of backyard composting information include:

http://www.cdcg.org/factSheets/Compost.pdf
or contact Capital District Community Gardens 40 River Street, Troy, NY 12180 518.274.8685

http://www.dec.ny.gov/docs/materials_minerals_pdf/compost.pdf
or contact NYS Department of Environmental Conservation Division of Materials Management Bureau of Waste Reduction & Recycling
625 Broadway Albany, NY 12233-7253 (518) 402-8706

http://cwmi.css.cornell.edu/compostbrochure.pdf
or contact the Rensselaer County Cooperative Extension Office 61 State Street, Troy, NY 12180 (518) 272-4210

[51] For more information, see: http://www.mass.gov/dep/recycle/reduce/compgnt.htm

3.6 // FUNDING OPPORTUNITIES

Implementing municipal composting in Troy, at all scales, requires significant funding for research, start-up, and long-term operational costs. Financial sustainability is essential to the success and longevity of any municipal program. Depending upon the degree to which residents and other stakeholders embrace increased recycling and composting, the CWG-C projects that these initiatives, beyond the initial infrastructure and equipment investments in a large-scale facility, will cover their own operational costs and potentially serve as continual revenue streams for the City. Compost from neighborhood-scale programs can save DPW the expense of buying mulch and soil. A large-scale facility will accept thousands of tons of food scraps to produce salable quantities of compost as well as bring in tipping fees from other municipalities and/or commercial haulers. New technologies in processing organic materials emerge daily, and large-scale facility managers and engineers are available for consultation.

Numerous resources exist to help guide the City of Troy through raising financial capital for organic materials management, including the Environmental Finance Center based at Syracuse University which provides a Funding Guide for Capital Projects in Sustainable Materials Management[52]. "With this reference tool, we hope to take some of the guesswork out of grant research for capital projects in sustainable materials management. This reference tool was created to help guide local governments and non-profits in New York State in search of federal, state, and third party financing for sustainable capital projects."

Federally, the Environmental Protection Agency (EPA)'s Center for Environmental Finance "assists the public and private sectors in their search for creative approaches to funding environmental programs and acquiring the tools and resources they need to meet environmental requirements[53].

A comprehensive, municipal organics management system - at small and large scales - will require leveraging many available financial resources with the ultimate goal of funding through self-sustaining, non-grant-reliant means.

Specific Recommendations:

- **Pursue funding opportunities** to defray implementation costs of a new program and facility, including available federal, state, and private **grants** and **loans**.

[52] Available at http://syracusecoe.org/EFC/images/allmedia/publications/SMMFundingGuideWebVersion.pdf
[53] For more info see http://www.epa.gov/envirofinance/

- **Apply savings** from decreased landfill tipping expenses towards building infrastructure for recycling organics.
- **Research markets for sale** of finished **compost** and **biogas**
- **Consider creative financing options** such as negotiating with current recycling transfer operator

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3.6.1 // Funding Opportunities through Grants and Loans

There are numerous federal, state, and private funding opportunities available. Many local organizations can serve as technical assistance resources. Grants are available for all aspects of sustainable materials management. As recommended, updating and pursuing these opportunities would be one duty of the **Recycling and Composting Coordinator**. Organics materials management projects are elligible for grants in many categories, including, but not limited to: land use, economic development, environmental conservation, and general sustainability.

Examples are listed below for some of the more well-known granting organizations. It would be impossible to present an all-inclusive list here, as funding opportunities change and many grants have scheduled cycles.

GRANTS

New York State Energy Resource and Development Agency (NYSERDA)
Existing Facilities Program (**PON 1219)**
The New York State Energy Research and Development Authority's (NYSERDA) Existing Facilities Program offers incentives for a variety of energy projects including Pre-Qualified Measures and Performance-Based Incentives.
nyserda.ny.gov/Funding-Opportunities/Current-Funding-Opportunities.aspx

Upcoming Facilities Program (**PON 2631)**
Behavior Research & Energy Decision Making
The object of this solicitation is to conduct a series of pilot studies designed to take advantage of predictable patterns of thinking and behavior to increase customer participation in clean energy programs and achieve greater energy savings than traditional information and incentive-based programs.
nyserda.ny.gov/Funding-Opportunities/Upcoming-Funding-Opportunities.aspx

New York State Department of Environmental Conservation (NYSDEC)
Improving quality of life in New York's communities
The Department of State's Brownfield Opportunity Areas (BOA) Program provides communities with guidance, expertise and financial assistance, up to 90 percent of the total eligible project costs, to complete

revitalization and implementation strategies for neighborhoods or areas affected by brownfields or economic distress. Brownfields are dormant properties where contamination or perceived contamination has impeded investment and redevelopment, making them an economic and environmental drain on localities. Through the BOA Program, brownfields are transformed from liabilities to community assets that generate businesses, jobs and revenues for local economies and provide new housing and public amenities.[54]

Overview of the WQIP Program
The New York State Department of Environmental Conservation (DEC) supports water quality improvements through the Water Quality Improvement Project (WQIP) Statewide Grant Program. The WQIP program is a competitive, reimbursement grant program that directs funds from the New York State Environmental Protection Fund to projects that reduce polluted runoff, improve water quality and restore habitat in New York's waterbodies. Eligible applicants for the WQIP program include Municipalities (villages, towns & cities), Soil and Water Conservation Districts, Not for Profit Corporations (in some cases)

Water Resources Development Act Funding Program
Funding Source: NY DEC, Army Corps of Engineers
Contact: Bureau of Water Resource Management, Division of Water
625 Broadway, Albany, NY

NYSAR School Recycling/Waste Reduction Program
Funding Source: NYSAR
Contact: NYSAR, Albany,NY
www.nysar3.org

Municipal Waste Reduction and Recycling Program
Funding Source: NYS DEC
Contact: NYSDEC Bureau of Solid Waste, Reduction and Recycling
625 Broadway, Albany, NY
www.dec.ny.gov/pubs/grants.html

Municipal Landfill Gas Management Program
Funding Source: NYSDEC; info. as above

Funding Source: US EPA
Contact: US EPA Region2, ny,ny
www.epa.gov/superfund/community/tag

[54] For more information, see http://www.dos.ny.gov/communitieswaterfronts/brownFieldOpp/boasummary.html#

Community Action for a Renewed Environment (CARE) Grant
Funding Source: EPA
Contact: CARE Program
Washington,DC
www.epa.gov/CARE/

LOANS

A Bridge Loan is a loan for a short-term period, usually two weeks to three years, until long-term financing can be arranged or an obligation is removed.

A Revolving Loan Fund is a gap financing measure primarily used for development and expansion of businesses. It is a self-replenishing pool of money, utilizing interest and principal payments on old loans to issue new ones.

The Solid Waste Technical Committee of The Capital Region Sustainability Plan recommends establishing a revolving loan fund to bridge recycling expenses as one of four high-priority initiatives.
http://sustainablecapitalregion.net/Report_12_26_12/9-Solid_Waste.pdf

Other loan opportunities currently exist from federal and state agencies. For example, the EPA administers a Brownfields Revolving Loan Fund Grant program providing funding to a grant recipient to capitalize a revolving loan fund that provides loans and subgrants to carry out cleanup activities at brownfields sites[55].

Via the Community Loan Fund of the Capital Region:

- **Energy efficiency loans** are available to both nonprofits and small businesses, saving energy costs and the environment. This program is offered in partnership with NYSERDA - when resources allow.
- **Participation loans** with many areas banks and credit unions are available, to both nonprofits and small businesses, for projects that exceed our loan limits. The Community Loan Fund can help package appropriate financing.

MATCHING FUNDS LOAN

Many projects in various states and communities are partially funded with federal grants with a requirement for matching funds.

[55] EPA Proposal Guidelines for Brownfields Assessment, Revolving Loan Fund, and Cleanup grants at: *http://www.epa.gov/ brownfields/applicat.htm*

As a definition, a matching grant is when a funder offers a certain amount toward a project or general operations, on the condition that the same amount (or more, or half, or whatever the declared amount is) also be raised from other sources. A matching grant can really help raise more money and "leverage" the grant to encourage donors to give and contribute. Donors respond to matches if one can help them see that their donation is actually carrying more value. http://voices.yahoo.com/working-matching-grants-137274.html

DEC-FUNDED PROGRAMS

Municipal Waste Reduction and Recycling Program (MWR&R):

Capital Projects - DEC is authorized to provide State assistance for projects that enhance municipal recycling infrastructure through purchasing of equipment or construction of facilities. Some communities used funding to construct materials recycling facilities or state-of-the-art composting facilities. Other communities have been able to purchase recycling containers and new recycling vehicles with their MWR&R funding.

Recycling Coordinators - DEC is authorized to provide State assistance for Recycling Coordinator salaries and for public education programs conducted by municipalities. This funding can help expand local recycling and waste reduction programs and increase participation.

3.6.2 // Savings from Increased Landfill Diversion

The CWG-C recommends closely tracking savings from increased landfill diversion (ex. increased recycling participation) to create continual funding for building infrastructure and facilities to capture the valued resources from composting. As shown in Table 1.1, recyclable materials via Troy's single-stream collection system represent the largest portion of the waste stream. By diverting larger percentages of recyclable material from the landfill to the Port of Albany Recycling facility, the City of Troy could save up to $555,321[56]. The City will not be able to save that amount entirely from tipping fees as increased recycling rates will also mean possible increases in collection and transportation costs that represent a greater shift towards diversion.

Compostable organic material represents the second largest portion of Troy's waste stream, including yard waste and food scraps. Diverting organic materials from the landfills could save Troy up to an estimated $303,457[57]. Savings from increased diversion via recycling and composting can be used to create positions to: enforce Troy's mandatory recycling law, educate residents and businesses on

[56] See Table 1.1; Estimate based on product of estimated recycleable content of Troy waste stream and a $60/ton tipping fee.
[57] See Table 1.1; Estimate based on product of estimated compostable content of Troy waste stream and a $60/ton tipping fee.

landfill diversion methods, and staff a centralized facility. In other words, increased recycling and composting creates sustainable jobs. Hiring locally will provide an economic boost to the City of Troy as well as increase education around solid waste management as more residents work with or live near sites and programs related to better materials management.

3.6.3 // Potential Markets/Revenue for Compost and Biogas

Diverting organics to a processing facility that produces salable compost presents an opportunity for a revenue stream for the City. A facility that is licensed for processing organics at commercial scales can also produce mulch and topsoil from yard waste - an important feedstock source for compost. Mulch and topsoil are also products in high demand by landscapers, facilities managers, gardeners, farmers, etc. These products are growing in demand as the practice of backyard and urban agriculture increase. Healthy soil is essential in growing healthy communities-- to remediate contaminated sites as well as provide nutrient-rich environments for growing food.

The Ulster County Business plan discusses the profit potential of composting:

> Compost is becoming a profitable commodity. In the last three decades there has been a slow, but steady move towards sustainable agricultural methods. Organic produce is one of the fastest growing markets in the United States today with sales increasing by 20% annually. One requirement of certified organic growing is the use of natural fertilizers and compost. As the sale of organic goods increases, the demand for compost will likewise increase. Moreover, the USDA has ruled that organic farms may no longer use biosolid-based compost if they wish to retain their organic certification. This means a greater demand for compost.
>
> Compost is also gaining popularity with the horticulture industry. It makes a great amendment to potting soils and can inhibit plant diseases. More and more commercial growers are amending their crop soils with compost. Furthermore, composting has a value beyond that as a commodity. Composting can be an integral part of a farm’s nutrient management program, and the product can be used to amend the farmer’s own soil. Composting converts nutrients into forms that don’t leach, kills weed seeds and pathogens (like fecal coliform), makes nutrients more available to plants, and may increase plant health. It also reduces the volume of material by as much as two-thirds, and it can be spread year-round.
>
> Finally, the EPA has concluded that composting can reduce nonpoint source pollution of our waterways and reduce nutrient loading. The need for compost is real, the potential for growth in the market is large, and the

means to composting are available. While composting is fairly simple; successful marketing requires forethought, creativity and a lot of work. Success in the compost business is not easy (and rarely quick), but the rewards are a cleaner and safer environment; the means to better manage food waste and the ability to augment revenue for the City.[58]

3.6.4 // Creative Financial Solutions

There are always creative options for financing programs and infrastructure. These options can appear spontaneously or with strategic planning, and new opportunities appear with changing technologies and culture. Some creative options according to what has been done locally or is available now include:

- Negotiate with Waste Connections, the commercial transfer operator that handles Troy's recycling. Waste Connections profits from the sale of Troy's non-organic recyclable materials. Measurable increases in the City's recycling rate will increase Waste Connections' revenue. Waste Connections has a vested interest in increased landfill diversion, and therefore may be willing to help finance efforts to increase the recycling rate. The current contract with Waste Connections expires in 2014.
- Watervliet's curbside organics collection program uses a pick-up truck confiscated from a drug conviction
- Artists built Great Barrington, MA's public recycling bins from found materials
- Crowd-sourced platforms can be utilized for specific infrastructure needs (Kickstarter, IndieGoGo, RocketHub, etc.)

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[58] "Food Waste Composting Pilot Project," Ulster County Resource Recovery Agency, accessed January 12, 2013, http://www.ucrra.org/rra-boardmem/info/UCRRA%20Composting%20Business%20Plan.pdf

3.7 // PHASE IN CITY-WIDE COLLECTION

In its section on Solid Waste, the Capital Region Sustainability Plan (CRSP) identifies improving and increasing composting options as a top priority initiative.[59] The CWG-C agrees with this conclusion and recommends that Troy phase in food scraps collection at the institutional, commercial, and residential scales.

Specific Recommendations

- Publicize **a pilot program, to be launched in Spring 2013,** in the dining halls **at RPI**, and **encourage expansion** to other institutions. **Track and use the data for capacity projections** for municipal facility.
- Implement **a pilot curbside pickup program** for separated organic waste
- Consider requiring **private haulers** operating within the city to have viable, **separated organic and non-organic recycling options** in order to obtain **permits.**

3.7.1 // RPI Pilot and other Institutional Routes

Food Services at RPI is currently working to implement separation of pre-consumed food scraps at four dining halls. Jackie Baldwin, RPI's Executive Chef through Sodexo, is negotiating with university administration to cover hauling expenses to the Schenectady Soil and Water Conservation District's Composting facility via an independent, local hauler. The CWG-C recommends that the City publicize the RPI pilot program as part of the push for commercial composting in Troy. RPI has long been a highly visible institution in Troy, and a composting system at RPI could pave the way for other institutions to begin composting food scraps by developing carting routes and source separation protocols.

Composting at schools and hospitals is not uncommon in this region; Union College, Schenectady County Community College, and Ellis Hospital currently collect food scraps for delivery to the Schenectady County Composting Facility. Vassar College partners with McEnroe Farms for food scraps composting.

There is interest at RPI to work towards a sustainable practice for organic material through a more closed-loop method of composting on-site (or within the city) for use on campus. St. John's University, in the Bronx, NY, provides a model

[59] "Capital Region Sustainability Plan: Draft Plan Available for Review," Cleaner Greener Communities Capital Region Consortium, last modified December 8, 2012, http://sustainablecapitalregion.org/full-report

of on-campus collection of food scraps, composting, and use of finished compost in campus gardens and landscaping. Skidmore College in Saratoga also piloted a student-run program of collecting food scraps from student apartment complexes for composting and use in the campus garden.

3.7.2 // Pilot Curbside Program

Given the diversity of housing in Troy - in that all residents do not have access to space for backyard composting, the desire to self-manage organics, nor the physical capacity to compost - a comprehensive system must include options for all residents. The CWG-C recommends that the city begin a pilot curbside pickup program which could collect food scraps from interested households in a geographically limited area and compost them at a local farm, the Schenectady County Compost and Recycling Facility, or a compost facility in Troy. By starting with a small pilot program, the City can more easily estimate the amount of food scraps that can be collected curbside, and learn to anticipate difficulties when scaling up food scrap collection. A small pilot program can also collect from households that are interested in curbside pickup, which will reduce the difficulties of noncompliance.

This pilot program could be structured after the Watervliet Organic Waste program (WOW), which started in January of 2012. In this program, 51 households were given a curbside bin, a kitchen catcher, and compostable liner bags, and asked to separate out pre-consumed food scraps for bi-weekly curbside pickup. In ten weeks of collection, the city diverted 2.88 tons of food scraps from landfills, saving the city $147 in tipping fees and removing the equivalent of nearly 7 cars' worth of greenhouse gases. The program was so successful that it was turned from pilot program into a permanent program in July of 2012, and has set a goal of recruiting 50 additional residents per quarter[60]. A similar curbside program in Dubuque, Iowa, has collected compost from 250 households for the past six years[61].

Curbside pickup can start immediately with volunteer participation modeled after the successful pilot program in Watervliet. Additionally, there are currently efforts to engineer a system that uses bicycles to collect food scraps. (See info on Food Cycle in “Neighborhood Scale Composting” Section 3.5)

[60] “Watervliet Organic Waste Report,” Office of the General Manager, accessed January 12, 2013, http://watervliet.com/welcome/files/GeneralManager/WOW%20summary%20for%20MayorFINAL%20pdf.pdf

[61] Paul Schultz, “Food Scrap and Organics Recycling.” City of Dubuque, accessed January 12, 2013, http://www.cityofdubuque.org/DocumentCenter/Home/View/2341

Figure 3.7.1: The Watervliet Organic Waste Program

	WOW Kits distributed to participants in the pilot program. Kits include compostable liner bags, kitchen counter container, curbside receptacle
	Vehicle used for WOW pickup.
	WOW Compost Pile: Static Aeration at Hudson Shores Park.

3.7.3 // Organic Hauling Options for Private Haulers

According to Troy city code 234-4 ("Permits for private haulers") permits are required for all commercial/private haulers within city limits: "no commercial hauler shall engage on a regular basis in the business of collecting, transporting, disposing of solid waste, and/or the recyclables generated within the City of Troy without obtaining a solid waste collection permit (SWCP)." The Commissioner to the Mayor issues commercial hauling permits upon approval of application and fee payment. To facilitate the implementation or expansion of organic and non-organic recycling in Troy the CWG-C recommends that the permit application for commercial hauling includes a demonstration of viable composting and recycling options for institutions with which haulers have or will pursue contracts. In doing so, the City can use the permitting process as a way to ensure recycling and composting options for commercial operations in Troy.[62]

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[62] See New York DEC regulations on Waste Transporter Permits for more details: http://www.dec.ny.gov/regs/4394.html

4 // SOLID WASTE GLOSSARY

To embark on this food waste composting business plan, it will be useful to define what is meant by "**organic materials**", "**organics**", and "**food waste**". There is confusion with the term *organic*, as it holds different meanings in different applications. For the purpose of discussing integrated waste management practices, organic(s)/organic materials will be defined as *materials derived from living origins--in other words, if it once grew or was derived from something which grew.* Fruits and vegetables, leaves, grass and yard debris are all "organics", as well as paper items (derived from trees), pasta and breads (derived from grains), egg shells and other by-products from food processing facilities, seafood and shells, and animals. This also includes items *manufactured from organics*, such as bags, utensils, plates, cups and bowls made from corn and potato starch, bagasse, and PLA. Therefore, for the purpose of this plan, "**Food Waste**", will refer to *all pre- and post-consumer foods and food by-products, as well as organic items which may accompany food--such as manufactured organics and soiled paper products (napkins, paper cups, cardboard, etc.)*

Anaerobic digestion occurs when bacteria break down (or "digest") organic materials in the absence of oxygen.

Biodegradable products will degrade due to naturally occurring microorganisms such as bacteria and fungi over a period of time. There is the possibility of a toxic residue as a result of the degrading process because of the materials used in manufacturing the original product. **Biocompostable** products degrade in the same way however, there cannot be any toxic residue as a result.

Commercial Waste is waste that is generated by businesses. It can include discarded materials from offices, stores, warehouses, restaurants, institutions (e.g., colleges) and non-hazardous industrial waste.

Compost is organic matter that has been decomposed and recycled as a fertilizer and soil amendment. It is the product of a controlled process of decomposing organic material. Naturally occurring soil organisms recycle nitrogen, potash, phosphorus, and other plant nutrients as they convert the material into humus.

Compostable products must: 1) be degradable in a compost system resulting in H2O, Carbon dioxide, inorganic compounds, and biomass. 2) disintegrate a composted product must break into small enough pieces that it is indistinguishable from the soil. 3) The resulting products from decomposition must leave behind no Eco-toxicity. 4) Result in soil that can support plant growth.

Contamination is any material that will not decompose in the composting process. Principal contaminates include Glass, Metal, Plastic, and Styrofoam. Additionally anything that will result in a toxic residue or impede plant growth in finished product would be considered a contaminate.

Degradable products will break into smaller pieces until they cannot be distinguished from soil. These products can be broken down by sunlight , temperature, or water. There is no requirement that they can be consumed by microorganisms. There is no requirement that the result of this degradation be free of toxic residue.

Construction and Demolition (C&D) Waste means the waste building materials and rubble resulting from the construction, remodeling, repair or demolition of buildings, pavements, roads or other structures. Construction and demolition waste includes but is not limited to, concrete, bricks, lumber, masonry, road paving materials, rebar and plaster.

Digestion is the biological decomposition of material in a container

Disposal means the final dumping, landfilling or placement of solid waste into or on any land or water or the incineration of solid waste.

Emission means the discharge of an air contaminant into the ambient air.

Farm Waste is made up of manure, animal bedding, spoiled feed, and crop residuals.

Food Processing Waste is generally the result of food product manufacturing. It is characterized by large volumes of mostly homogenous waste. Usually high in moisture content.

Food Waste is made up of food and food preparation waste. Typically this waste will have food as well as some compostable food packaging.

Gasification is a chemical process that converts carbon-containing material, such as coal, petroleum coke, or MSW into a synthesis gas that can be used for energy production or as a building block for other chemical manufacturing process.

Haulers are private businesses that pick up solid waste from residents and businesses, and take it to a recycling facility, transfer station or disposal facility.

Landfill means a facility or part of a facility established in accordance with a valid site assignment for the disposal of solid waste into or on land.

Leachate is water (usually from rain) that percolates through waste material in a landfill. As the water moves through the waste, it picks up contaminants from the waste material, and it must be collected and properly disposed of, to avoid transferring the contaminants to groundwater.

Material Recovery Facility (MRF) is a facility that sorts and bales paper, glass, plastic and metal containers before selling them to industries which use the recyclables as feedstock in their manufacturing process.

Municipal Solid Waste (MSW) means trash that is discarded by residents, businesses, institutions, and municipalities. It does not include hazardous waste or industrial by-products.

Municipal Waste Combustors (MWCs) are facilities that burn municipal solid waste (commonly known as trash or garbage) at a very high temperature (approximately 2,500 degrees Fahrenheit) to generate electricity or steam power. These facilities are also known as "waste to energy" plants and as "incinerators" (although traditionally, "incinerators" just burn trash and do not generate electricity or steam.

"Pay As You Throw" (PAYT) is a way of funding municipal solid waste collection by charging residents for each bag or barrel of trash they discard and not charging to collect recyclable material.

Processing means the use of a method, technique or process to reduce the volume or alter the physical characteristics of solid waste or of recyclable or compostable materials by separating, baling, shredding, crushing or reworking. Processing prepares materials so they can be used in manufacturing new products or otherwise re-used.

Pyrolysis is the thermal decomposition of organic materials into gases, oils, and char.

Recyclables are discarded materials that can be recycled.

Recycle means to recover materials or by-products which are reused; used as an ingredient or a feedstock in an industrial or manufacturing process to make a marketable product; or used in a particular function or application as an effective substitute for a commercial product or commodity. "Recycle" does not mean to recover energy from the combustion of a material.

Recovery means the use, but not the disposal, of a separated material for energy production or other uses (except use at a solid waste disposal facility)

Site Assignment is a municipal approval of the use of a specific property for a solid waste management facility.

Sludge is the solid material that is suspended in wastewater, and remains after wastewater has been disposed.

Source-Separated Organic Waste (S.S.O.W.)
Food or other organic waste that is sorted to remove contamination and recyclables at the location where waste is generated.

Transfer Stations are facilities that receive, temporarily store, and ship loads of recyclables and solid wastes for transport to a Material Recovery Facility, recycling processor or final disposal site

Waste Bans are prohibition on the disposal of specific materials. The bans cover materials that can be recycled, and preserve capacity at disposal facilities for materials that cannot be recycled.

Yard Waste is plant material that has been collected including brush, tree wood, lawn clippings, leaves, and any other vegetation.[63]

[63] Source: http://www.mass.gov/dep/recycle/swterms.htm

Improving Troy's Solid Waste Management Program

Analysis and Recommendations

September 2000

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A Report of the

Green City Project

A Joint Undertaking of the

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Introduction

Troy's current municipal solid waste (MSW) program lacks necessary incentives to recycle and reduce the waste stream, preventing the City from reducing its trash disposal and landfilling expenditures and playing a more responsible environmental role in the region. Residents must pay $29 for curbside recycling, an unfortunate situation in that recycling helps the City avoid trash disposal costs. The hidden cost of solid waste services—not itemized on residents' tax bills—impairs the City's ability to operate an efficient and modern MSW program.

In 1999, Troy homeowners each paid $217 for their trash pick-up and disposal.[i] Because they cannot see this charge as a line item on their property tax bills, some residents have the misconception that garbage collection is free. Our survey of Troy residents showed that 35% of respondents were unaware that they paid for solid waste services in their property tax bill. There is no incentive to reduce the amount of landfilled waste if there is no promise of reduced cost from diverting materials from the trash. Residents will not understand the economic benefits of recycling unless they are aware of the cost to citizens for garbage collection and disposal.

Troy should consider the benefits of a volume-based municipal solid waste program. We provide here a proposal to implement such a "pay-as-you-throw" (PAYT) program, combined with analysis, based on an extensive months-long study, to support the proposal. There is nothing unusual about volume-based municipal trash systems, either in our own area or elsewhere. Most of the Towns of Rensselaer County rely on private haulers using pay-as-you-throw systems. There are currently over four thousand such programs in effect around the United States. They are both the state-of-the-art in MSW programs, and the wave of the future as landfills close and the cost of trash disposal climbs.

What follows first is our proposal itself. We then turn to more detailed explanation and analysis of the features and benefits of volume-based systems.

We have previously released Improving Recycling in Troy (June 2000), which made a number of recommendations for action. Combined with this report, key short term recommendations for city action include

- have the City take over administration of the recycling program from Waste Management:
- hire a Recycling Coordinator to oversee and expand the materials recycled;
- apply for grants to defray costs of the new program
- eliminate the annual fee for recycling
- itemize solid waste costs on the tax bills; and;
- adopt a volume-based, Pay as You Throw System for solid waste.

The report outlines a number of approaches that the City could adopt with respect to implementing a volume based, Pay as You Throw System. Due to a number of concerns that have been raised by Mayor Pattison, particularly with respect to the need have stable projections as to the revenues raised by the City for its solid waste program, we are recommending that the City initially adopted a system where the fixed costs related to the collection of municipal solid waste is included within the tax base, and that residents are charged a nominal per bag fee to pay for the landfilling costs.

We note that the annual municipal solid waste costs for the City of Binghamton, which has similar demographics to Troy, is $350,000 less than the City of Troy. Our proposal will save tax dollars, increase recycling and promote a cleaner environment.

A Volume-based Municipal Solid Waste Program Proposal for Troy

Goals of the Program

- Save the City money by generating less trash: the less garbage the City hauls to the landfill, the lower its expenses;
- Save Troy residents money: with incentives to recycle, citizens will throw away less, reducing their trash bills;
- Demonstrate the City of Troy's commitment to environmental responsibility.

Recycling

The City will take over control of its recycling program from Waste Management, purchase three special trucks, hire a Recycling Coordinator, and eliminate the $29 annual recycling fee. Improved recycling goes hand-in-hand with a volume-based MSW system by reducing the volume of trash thrown away. For further details on reforming the City's recycling system, see our "Improving Recycling in Troy: Analysis and Recommendations, June 2000," available from the Green City Project at the Rensselaer Ecological Economics, Values & Policy Program (contact information above). Strengthened recycling in the near future is essential as competition for landfill space is growing. There are now only 28 operating landfills in New York State (down from 294).[ii] Landfill space will grow even tighter when New York City's Fresh Kills landfill on Staten Island closes in 2001. Fresh Kills currently receives *one-third* of all municipal solid waste generated in New York State.[iii]

Collection

The heart of a volume-based MSW program is standardized collection units, bins, cans or bags. We recommend Troy use 15 gallon and 32 gallon bags so that residents can continue using their current trash cans. The distinctly colored bags can be distributed by local shops and supermarkets as, for example, in the Town of Brunswick. The distributors do not make a profit from the sale of these bags, but distribute them at cost as a public service. The City can contract with a local company for the manufacture of the bags.

Both garbage and recycling should be collected on the same day in each neighborhood. Residents will only have to devote one day to solid waste management per week, ensuring citizen compliance with the new program.

Budget

A volume-based municipal solid waste program introduces financial incentives to recycle and disincentives to discard recyclables with trash. Citizens purchase special bags in order to dispose of their solid waste. The more people recycle, the fewer bags they will have to purchase, and the more they will save. An increase in the recycling rate means increased revenues for the City from sale of the recyclables, and a decrease in tipping fee expenditures.

Troy spent $1,160,000 for landfill tipping fees in 1999 (including $874,760 for municipal solid waste) , which accounted for fifty percent of the Bureau of Sanitation budget. The City spent $375,000 for recycling services in 1999, utilizing Waste Management. With a recycling rate of 18% in 1999, the City avoided disposal costs of $82,208. If the City of Troy had a recycling rate twice its current rate—still less than the New York State average—the City would have saved $164,416. A rate such as 36% is eminently feasible for the implementation year of a volume-based program, based on results from Binghamton. Improvements in the recycling rate in future years are also likely (New York State DEC claims that the statewide average recycling rate was 39% in 1995).[iv]

Troy Recycling Rates and Avoided Disposal Costs

Year	Recycling Rate	Avoided Disposal Costs
1992	9%	$225,000
1993	11%	$230,000
1994	14%	$220,000
1995	14%	$200,000
1996	15%	$155,000
1997	19%	$155,000
1998	17%	$135,000
1999	18%	$82,208

Source: "City of Troy Solid Waste Programs: General Financial Information," (spreadsheet printout) City of Troy Bureau of Sanitation, April 2000.

The avoided disposal costs decreased because the tipping fees for landfilling decreased.

In order to meet the Mayor's concerns that there be a reliable projection of the City's revenues for the solid waste program, we are recommending a system where the cost of picking up solid waste be included within the general tax base. We propose covering the cost of landfilling the municipal solid waste through citizen purchase of trash bags for less than 50 cents each.

Education

The City must educate residents about the environmental and economic benefits of a PAYT program prior to implementation. Pamphlets, leaflets, community meetings, and public hearings are all useful methods of increasing public awareness. The main goal of education should be to inform residents about how the new program works, and how it is superior to the current program. Education will increase compliance, and should be continued well after the program goes into effect. If desired, Green City Project personnel will consult with Troy on establishment of the education program.

Enforcement

In order to implement an effective PAYT program, there must be enforcement to ensure compliance, and prevent problems such as illegal dumping. We recommend Troy hire two enforcement officers. Many cities have found that after the first few years of a volume-based system, enforcement expenditures have been reduced or eliminated due to increased citizen compliance. Failure to recycle or use the special trash bags would result in written warnings, followed by fines. Tenant compliance would be the responsibility of landlords. Unpaid fines would be assessed against individual or landlord property tax bills.

MSW and Recycling Personnel and Equipment

Troy currently owns a total of eighteen sanitation vehicles:

- 4 automated collection vehicles
- 4 twenty cubic yard rear-loading packers
- 5 side-loading packers
- 2 side-loading packers (backup)
- 3 bulk refuse claw trucks

A total of nine sanitation vehicles collect solid waste five days a week. The Bureau of Sanitation collects from about 17,000 properties per week, including approximately 2,600 commercial properties.

Recycling is contracted with Waste Management. Waste Management collects recycling from about 11,000 residential properties per week. We recommend the City take over the recycling service, as we laid out in our separate report. To do so requires the purchase of three more trucks for about $170,000, plus the salary for four recycling collectors, for a first year total cost of about $250,000. This is approximately $125,000 less than Troy spent on recycling in 1999. After the first year, this cost would reduce significantly because the trucks would be paid for. After the first year, the cost would decrease to the roughly $100,000 for labor costs, saving the

City $275,000. The City would also benefit by retaining all the profits from the recycling markets

The initial start-up cost of the City taking over the recycling program would be $250,000, $125,000 less than the City expended for recycling in 1999.

In 1999, the City employed 23 drivers/sanitation men and 1 Supervisor. On any given day the number of employees could be as low as 15 drivers/sanitation men. A volume-based program decreases the amount of scheduled pick-up days, and also the amount of manpower necessary. Economically, it makes sense to have a volume-based system, which generally decreases spending on the operation of vehicles (gas, mileage on trucks, pollution, and labor

Tipping Fees

Troy landfills its solid waste in the Town of Colonie. For 1999, Colonie charged $50 per ton for Municipal Solid Waste, $60 per ton for bulk refuse/ construction and demolition, and $20 per ton for contaminated soils.[8] The number of tons landfilled for Troy in 1999 are shown in the table below.

City of Troy 1999 Landfill and Recycling Quantities

Landfilled	Tons	Recycled	Tons
MSW	17,495.16	Paper	1,084
Bulk Refuse/C&D	3,472.23	Co-mingled	559.68
Contaminated Soils	256.27	Metal/White goods	129.35
		Tires	24.41
		Yardwaste	2,975.0
Total	21,223.66	Total	4,772.44
% of wastestream	**81.6%**	**% of wastestream**	**18.4%**

Source: "City of Troy Solid Waste Programs: General Financial Information," (spreadsheet printout.) City of Troy Bureau of Sanitation.

The City of Troy spent $874,758 for tipping fees for municipal solid waste in 1999. The avoid of disposal for that year was only $82,208, with 81.6% of their total waste stream being sent to the landfill. Binghamton, NY a city with similar demographics to Troy, was able to recycle 10,483 tons for 1999, and landfill 12,399 tons. Recycling was 45% of their wastestream and landfilled waste was 55%. Troy landfilled 58% more waste than Binghamton and recycled 45% less.

If Troy's numbers were similar to Binghamton, solid waste costs in 1999 would have been $367,399 less. A volume-based program could give Troy the savings that Binghamton has seen, making it economically feasible, especially with increasing tipping fees.

General Overview of a Pay-As-You-Throw Program

Definition of a Volume-Based System

Under a volume-based system, residents are charged for waste collection based on the number and size of waste containers that they use.[3] In some communities, households are charged directly for waste collection (usually through direct billing) based on the number of bags or cans set out at the curb. Others require residents to purchase special trash bags, tags, or stickers that include the cost of waste collection in the purchase price. Communities basing their programs on trash volumes typically select a rate structure design that includes one of these two options.

Many communities consider a Pay-As-You-Throw (PAYT) program in order to find a solution to the closing of a town landfill or an unexpected increase in solid waste costs. In a PAYT program, if households generate more waste, they pay more. Without the incentives of pay-as-you-throw, when residents generate more waste, they still pay the same amount. This leaves a city's revenues constant, despite increases in solid waste costs.

In many communities, collection frequency can be reduced from twice to once per week, and the time it takes to collect trash may also decrease. The use of standardized containers can speed up collection. Each of these benefits leads to savings through reductions in equipment and overhead costs, such as labor, fuel, and maintenance.

Typical PAYT Pricing Systems

Linear Pricing: Households pay a set price for each can or bag set out. Estimated annual program costs are incorporated into the bag price.

Two-tiered Pricing: The fixed costs of an MSW program are financed by a flat fee or through taxes, while residents pay a set per-container fee that covers disposal charges and other variable costs of the program. In some communities, the fixed costs include some level of trash collection per week before the per-container fees are levied.

Multitiered Pricing: As with two-tiered pricing, residents pay a fixed cost plus a per-container fee for each bag or can collected. Multitiered systems also charge different fees for containers of different sizes.

Benefits of Volume-based MSW Programs

When PAYT systems are introduced, some residents respond negatively, believing that they are being unfairly charged. This is especially the case when their solid waste services have been paid as part of their taxes, and are therefore often regarded as free. A city official in Loveland, CO, commented that two weeks after implementation of PAYT, he received phone calls from residents apologizing for their harsh initial reactions to PAYT. Most residents changed their minds once they understood the benefits of the program. The PAYT program gives residents control of their garbage bill. Those who generate more waste pay more

Before adopting PAYT, Falmouth, ME paid $146,000 annually for garbage collection. In the first year of the PAYT, collection costs were only $116,000, a 20% reduction. Tipping fees or disposal costs also decreased as the amount of waste landfilled decreased, saving the City $50,000-88,000 per year. Dover, NH budgeted $1.2 million for solid waste in 1990, and in 1991, when the PAYT was implemented, Dover spent only $878,000.

In 1994, South Kingstown, RI made the switch to a volume-based MSW program. In 1995, the annual amount of waste landfilled dropped to 2,175 tons (a reduction of 71% from the 1992 figure of 7,608 tons). Mount Vernon, IA began using PAYT in 1991. After the program was instituted, residents sent almost 40% less garbage to landfills. Holland, MI was able to increase recycling to 50% through the PAYT program along with curbside and drop-off recycling, yardwaste collection, and community education. Fort Collins started a PAYT program in 1995. In the first six months, the percentage of households that recycled increased 53.5% to 79%. Los Angeles, CA has the largest volume-based program nationwide that serves 3,485,398 residents.

As of 1995, 4,033 communities across the United States have adopted PAYT programs of their own. There are currently 157 volume-based programs in New York State. After implementing a PAYT, communities typically report 20% to 35% reductions in waste generation.

Opposition and Solutions

A PAYT program initially concerns many residents. They fear an increase in costs for themselves and an increase in revenues for the City. Potential barriers and solutions to a PAYT program are as follows:

Potential Barriers	Solutions
Illegal dumping/burning	-Educate residents about pay-as-you-throw -Provide several legal diversion options -Develop enforcement plan
Uneven revenues/revenue: shortfalls as residents generate less waste	-Use multi-tiered pricing -Plan for reduced waste amounts in steady-state when setting prices -Drop in revenues more than offset by drop in disposal costs
Multi-family housing (Landlord/Tenants)	-Include charges in rent -Under a bag-based system, have tenants purchase bags -Use bar code readers on building garbage chutes
Perception that waste collection is free/PAYT is a tax increase	-Educate residents about PAYT -Set prices at levels residents will accept
PAYT is regressive/low-income residents feel greater impact	-Offer these residents rebates, coupons, or discounts -Offer free bags to recipients on general assistance
Overstuffing of containers	-Set weight limits on containers
Lack of support from private waste haulers	-Involve haulers in the planning process -Pass ordinance mandating haulers offer variable rates -Get rid of private haulers and have City pick-up garbage

Educating the Community[4]

Education is a key element to the Pay-As-You-Throw program. Residents need to know that a PAYT is necessary, fair, and not an added tax. They need to be educated about the logistics of the program. If solid waste service costs are included in the general tax levy, there must be a clear, corresponding reduction in the tax levy that is well publicized to the residents. Residents should be shown that the current MSW program is not sustainable. A PAYT program will save money, and is easy to participate in. Flyers posted around town, public meeting, press releases, invited community participation, and brochures are all means of education.

Media should also be convinced of the necessity of a PAYT program in that community. The PAYT should be portrayed as having multiple benefits: it will give both residents and the municipality money, reduce waste, and is fairer to residents. Press releases/press kits, briefings for reporters, inviting reporters to town meetings and community meetings are ways of generating positive media coverage.

Enforcement

Introduction

Any solid waste program—whether or not it includes pay-as-you-throw (PAYT)—typically has an enforcement component.[6] Possible compliance issues include exceeding size or weight limitations of containers placed out for collection and placing items into recycling bins that are not listed for recycling under the program.

One of the first enforcement steps planners often take is to ensure that residents find complying with PAYT easy. During the education and outreach stages, planners can seek input from residents about how to arrange the new program, such as where the residents would like to purchase the bags. The survey of Troy residents conducted by the students for the project showed that most residents would want the bags sold at local stores rather than an office. Convenient procedures can then be established for waste collection, sale of bags or stickers, and other details. This can be one of the most effective preventions to compliance difficulties.

In addition, communities usually make sure that relevant local ordinances or other legal arrangements are in place. These ordinances are designed to discourage any activities that might undermine the program's effectiveness. For example, ordinances prohibiting illegal dumping and burning are often adopted by communities offering variable rates for trash services. While communities may find it helpful to review ordinances from other cities and towns, the particular language needs to be customized to fit local circumstances.

Public Education Component of Enforcement

Public education and outreach is an essential part of enforcement. Many communities have found that the potential for lack of compliance is much less of a concern once residents clearly understand how the program works and what is expected of them. The municipality needs to clearly communicate to residents details about the PAYT program including: limits on the acceptable size and weight of filled containers, how payment is made, and how trash in excess of a household's subscription level should be handled. Clear, easy-to-follow instructions presented repeatedly tend to be most effective.

Conducting a pilot program can help to increase residents' understanding of how the PAYT works. Pilot programs are usually implemented in a few neighborhoods or for specific program components. Building acceptance within the community leads to fewer enforcement problems in the future.

There are other methods communities use to ensure compliance. Publishing violations in the newspaper can be effective. Establishing special collections for certain wastes (for example,

bulky items or materials such as paints, pesticides, and other items considered to be household hazardous waste) can help prevent illegal dumping or burning. Activities such as citizen cleanup days or adopt-a-highway projects create citizens' interest in maintaining and improving their community and often sparks environmental ethics.

Because trash generated by residents of apartments/multi-family housing is often collected from common dumpsters rather than directly from the units, including these households in a PAYT program can be difficult. There is no guarantee that residents of apartments/multi-family housing will choose to participate; in many cases, they can simply continue to put their trash into the building's dumpster if they wish. It can be difficult to enforce the use of PAYT. In addition, multi-family buildings may not receive the same level of recycling and other complementary services as single-family housing units. These residents might therefore have fewer avenues for waste reduction.

Despite these potential difficulties, options are available to include residents of apartments/multi-family housing. Planners might work with building managers to offer a waste reduction incentive tailored for the building's residents. Under this approach, if residents generate less trash, some of the building manager's reduced waste disposal fees would be passed on to the tenants in the form of lower rents or fees, or even a direct cash rebate. The incentive is somewhat diluted with this option, however, because the cost savings would be spread among all building residents—regardless of whether they threw away less trash. Another approach is to modify buildings' waste collection systems. Dumpsters or garbage chutes could be altered to operate only when a magnetic card, trash token, or other proof of payment is used.

Illegal Dumping & Burning Issue

Most communities with pay-as-you-throw (PAYT) have found that illegal dumping has proven to be less of a concern than anticipated and that there are steps they can take to minimize its occurrence. Typically, communities report that illegal diversion can be an issue regardless of the way in which residents are charged for solid waste management.

Communities with or without PAYT sometimes must deal with waste residents have dumped by roadsides or in undeveloped areas, burned in their backyards, or deposited into commercial dumpsters. Illegal dumping often occurs prior to implementing PAYT and tends to persist at some level following implementation as well. Research conducted about illegal dumping supports this position.

In a study by researchers at Duke University, communities with PAYT indicated that the dumping and burning of trash was a smaller problem than anticipated. Forty-eight percent of the cities and towns saw no change in illegal diversion, while 6 percent felt it declined after PAYT was implemented. Just 19 percent felt it increased. (Twenty-seven percent had no information.)

According to communities with PAYT programs, the key to minimizing the potential for illegal diversion is to create a significant obstacle. Communities often implement fair but aggressive enforcement policies at the same time as the PAYT program. The most common step solid waste planners take is to pass ordinances (if they do not already exist) or take other legal steps that clearly establish illegal diversion as a violation. These measures often allow enforcement personnel to search abandoned trash for indications of its origins. Fines or other penalties also are usually included as part of these ordinances.

In addition to legal action, other measures include sending letters to violators or even publishing violations in the local newspaper. Some deterrents are relatively simple to implement. To prevent residential waste from being left in commercial dumpsters, for example, planners can encourage or assist local businesses to lock up these units.

Communities with PAYT often find that one of the most effective deterrents is simply to ensure that residents have as many legal options for waste reduction as possible. Recycling, composting of yard trimmings, and other complementary programs allow residents to significantly reduce trash disposal amounts and save money making illegal dumping less likely.

Along with enforcement, communities typically report that public education and outreach can help to prevent illegal practices from becoming a problem. Simply informing residents about the program and how they can participate will facilitate greater compliance with its rules and procedures. To help reduce residents' concerns, communities also can include information in their outreach efforts about how they plan to use enforcement and penalties to control illegal actions.

Three Cities Report on Illegal Dumping

In Mansfield, Connecticut, officials report that illegal dumping did not increase significantly with the introduction of a PAYT system. To prevent illegal dumping, Mansfield has relied primarily on public education. When necessary, however, the solid waste department also has worked with the police department to track license plates and identify violators.

Seattle, Washington has also found no association between implementation of PAYT and an increase in illegal dumping. In fact, 60 to 80 percent of the illegal dumping incidents in the city are associated with remodeling waste, old refrigerators, and construction debris—waste that the city suspects comes from small contractors who do hauling on the side.

The city of Pasadena, California reports similar findings. A survey conducted at the city's landfill indicated that Pasadena was disposing of one-third more trash than was indicated in a waste generation study completed in the city. Pasadena suspects that this waste is made up of construction and demolition debris dropped off by small contractors.

CASE STUDY #1[10]

Portland, ME

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Peter Dewitt, Portland Public Relations Coordinator (207) 756-8173

Portland, Maine of population 65,000, adopted a multitiered volume-based system of waste management in July of 1999 through a City Council decision. Two sponsored committees within the City Council introduced the idea in 1997. The committee first reviewed solid waste issues broadly, then concentrated on Pay-As-You-Throw exclusively. The volume-based system was introduced along with curbside recycling, which was a request of many citizens.

The recycling program is contracted with Waste Management. There are 6 trucks, which run 4 days a week. Recyclables are co-mingled and the trucks having three separate sections for different materials.

Solid waste is collected by 4 trucks, which run 5 days a week; previously Portland used 6 trucks 5 days a week. Bulky waste is picked-up free of charge, as long as the resident calls the information line to let the City know. The bag system is used, it costs $0.68 for a 30-gallon bag and $0.34 for a 15-gallon bag. Bags are sold in rolls of 5 and 10, 5 30-gallon bags for $3.40 and 10 15-gallon bags for $3.40. Retailers do not make any profits from bag sales. The cost of the weekly collection is included in the residents' property taxes.

Troy Moon, the Solid Waste Coordinator for Portland, commented that the response to the program was good. There were no major compliance issues such as illegal dumping and no fines have been handed out. The Public Relations Coordinator, Peter Dewitt worked with many different citizens groups, along with visiting over 100 classrooms and community events where he could give out recycling information.

The city also worked closely with the Landlord Association in Portland. Each landlord was invited to help city officials develop the program and educational material for tenants. Portland city officials also agreed to talk to tenants, although no landlord has taken advantage of this offer thus far. Commercial areas are not contracted with the city and must have their own waste management system.

There is a crew of officers responsible for enforcement of the volume-based program. Under the Code of Enforcement, these 12 officers are responsible for their own section of the city, which includes trash, building maintenance, public works, etc. Should an officer identify a material as improper, they proceed to knock on the person's door and ask them to remove it within 4 hours. If the resident fails to remove the object, the city will pick it up. If this occurs three times, there is a fine of $100 that is mailed to the resident. Should a tenant fail to comply, the fine will be given to the landlord, in which case it will be their responsibility to speak to the tenant.

Since the Pay-As-You-Throw program has been implemented in July of 1999, Portland, ME has saved almost $500,000 in avoid of disposal fees. Tipping fees have decreased by 45% in less than a year and they have a goal, which they meet of 70-90 tons of recycled materials each week. The city feels that the program is set-up fairly, and that all residents have equal opportunity to save cost, whether they are a family of two or ten. The city provides recycling, composting of yard waste, free bulky waste pick-up, and hazardous waste collection days, giving people amble opportunity to reduce their landfilled waste. After less than a year of the Pay-As-You-Throw program, Portland, ME has had minimal setbacks and maximum rewards.

CASE STUDY #2[11]

Binghamton, NY

Contact: Gregory Precopio, First Deputy Commissioner (607-772-7201)

Binghamton, New York has a population of about 55,000 people, a comparable size to that of Troy, NY. Binghamton adopted a volume-based system of waste management in 1991. The Pay-As-You Throw program (PAYT), has saved the city over $3 million in avoid of disposal costs over the past nine years. The current recycling rate is 45.8% and is in the top 20% in the state.

The city operates the bag system, selling 8-gallon bags for $0.36, 16-gallon bags for $0.63 and 32-gallon bags for $1.17. The fixed cost of the weekly collection is paid for in the property taxes, while the price of the bags covers the variable disposal costs. The bags fund 50% of the solid waste program. The revenue from bag sales pays for the tipping fee, the cost of a recycling and garbage inspection staff, and bag production. Weekly services include garbage (yellow bags only), recycling, yardwaste, and trash (items which are too large or too heavy to fit into the yellow city bag). The revenue from the garbage bags equates to $1.2 million dollars per year.

The initial recycling staff consisted of the recycling coordinator/user fee manager, and four inspectors. In 1999, Binghamton employed two inspectors. In 1991, the city maintained a fleet of 12 garbage trucks, 5 recycling vehicles, a transfer station, 3 transport trailers, and 8 supervisory and inspection vehicles. In 1998, the city collected once per week for the following items: garbage MSW, recycling, yardwaste and trash. Of the total waste stream for 1998, 13,050 tons were landfilled, 4,747 tons were recycled, 5,200 tons were recycled yardwaste, and 400 tons were recycled metals. The total tipping fee was $524,668 and had an overall recycling rate of 44.28%.

The PAYT program in Binghamton is enforced through a strong local ordinance that is directed by the Recycling Department. A staff of inspectors works with the city collection crews to tag any violations at every collection. Violations are tagged with a sticker, giving the residents 24 hours to bring the violation into compliance. The violator is also called that same day. After 24 hours the violation is rechecked and photographed if not removed. The city then collects the item and bills the property owner. Violators have the right to appeal in writing within ten days. Greg Precopio stated that the fines are arbitrary, the only set fine is $6 a bag. He also commented that they could not have successfully implemented a volume-based system without enforcement. If the violation is not paid within 30 days, it will be added to the violator's property tax bill. A recycling hotline is set-up to maintain public relations. Non-compliance has not been a problem in Binghamton. The following table gives a break down of Binghamton's solid waste program, and compares the results with the City of Troy for fiscal year 1997.

Comparison of Binghamton to Troy with Respect to Solid Waste (1997)

1997	Binghamton	Troy
Population	53,000	55,000
College School pop.	12,000	7,500
Off campus living	6,500	4,800
Landfill Cost	$40/ton	$45/ton
MSW collected	Weekly	Weekly
Curb side recycling	YES	YES
Yard Waste Collection	YES	YES
MSW collection by	City	City
Total MSW trucks/crew	12/12	9/18
Recycle collection by	City	Private
Total Recycling (trucks/crew)	6/12	3/3
Total waste generated	23,582	20,541
Recycling rate	46%	10.3%
Recycling tons	5,675	1816
Yard waste collected	5,000	110
Tons landfilled	12,741	18,762
Avoid of disposal	$357000	$92,842
Recycle Revenue	$254,820	$84,870

In 1990, a pilot program was run in a few areas of Broome County, which includes Binghamton. In 1991, the city distributed numerous education pamphlets and flyers in order to inform the residents of the program. Also, in 1991, the whole county converted to the bag system. There were limited extra costs, only a few extra employees to cover the recycling. The City of Binghamton was already maintaining their own waste collection, having their own trucks and crew. In 1990, the city maintained a fleet of 12 garbage trucks, a transfer station, 3 transport trailers, and 4 supervisory vehicles. In 1991, the city maintained a fleet of 12 garbage trucks, 5 recycling vehicles, a transfer station, 3 transport trailers, and 8 supervisory and inspection vehicles. In 1991, the recycling rate was 37%, by 1999 it was 45.8%. In 1999, the city landfilled 12,399 tons and recycled 10,483 tons, which included the curbside pick-up, yardwaste, and metal goods.

Demographically, Binghamton and Troy are very similar. Binghamton has been participating in a PAYT program for 10 years, saving $3 million in avoid of disposal fees. The program has proven to be an overwhelming success at reducing the waste stream. Since the program has been implemented in 1991, landfilled waste has been reduced by over 50%. Binghamton has also been an example to other communities such at Utica, NY and Holyoke, MA, who both based their entire volume-based programs around Binghamton. The above information shows that Troy can successfully adopt a volume-based system.

CASE STUDY #3[12]

Seattle, WA

Seattle, Washington of population density 539,700, began their volume-based system in 1988. At that time, two of their landfills were being closed and the city needed to establish a plan to decrease their waste stream. Seattle adopted a can-based program along with the standard tag system for volume-based solid waste management, curbside recycling, and yardwaste composting.

Curb/Alley service is the standard garbage collection service within the City of Seattle. Containers must be set out on your regular day of collection by 7:00 am. Garbage is discarded waste items, prepared per city regulations that are NOT hazardous waste, yard waste, food waste or dead animals weighing over 15 pounds. Containers should be within 3 feet of the curb and be easily accessible to garbage collectors.

The Mayor and City Council decided to adopt a mini-can (20 gallon container) service priced at $12.35/month. If customers use the city's curbside recycling programs effectively, they can use the mini-can and save $3.85/month (the difference between the mini-can and single can rate). Like the single can rate, the mini-can rate includes the cost of the curbside recycling program.

In 1992, the city began offering an even smaller level of service called the "micro can". This container is 12 gallons and was originally $9.37/month. Stickers (tags) cost $5.00 and are used for any waste that exceeds the size of the can. Stickers are to be placed directly on any bags exceeding the garbage cans.

All residents within the City of Seattle are required by the Seattle Municipal Code to have garbage containers and pay for garbage service. The cost of the service depends on the number and size of garbage containers as detailed in the following tables: Residential, Multi-Family. Residents with 60 and 90-gallon containers will be charged for two and three 32 gallons. Garbage is billed every other month in advance.

2000 Monthly Residential Rates

	Collection Type	
Service Level	**Curb/Alley/mo**	**Backyard/mo**
Micro-can	$10.05	N/A
Mini-can (20 Gal.)	$12.35	N/A
One can (32 Gal.)	$16.10	$22.50
2 cans (32 Gal. Each)	$32.20	$45.00
Additional per can	$16.10	$22.50
Yard waste	$4.25	N/A

Multi-Family Rates

	Collection Type	
Service Level	**Curb/Alley/mo**	**Backyard/mo**
Micro-can	$10.05	N/A
Mini-can (20 Gal.)	$12.35	N/A
One can (32 Gal.)	$16.10	$22.50
2 cans (32 Gal. Each)	$32.20	$45.00
3 cans (32 Gal. Each)	$48.30	$67.50
Additional per can	$16.10	$22.50
Yard waste	$4.25	N/A

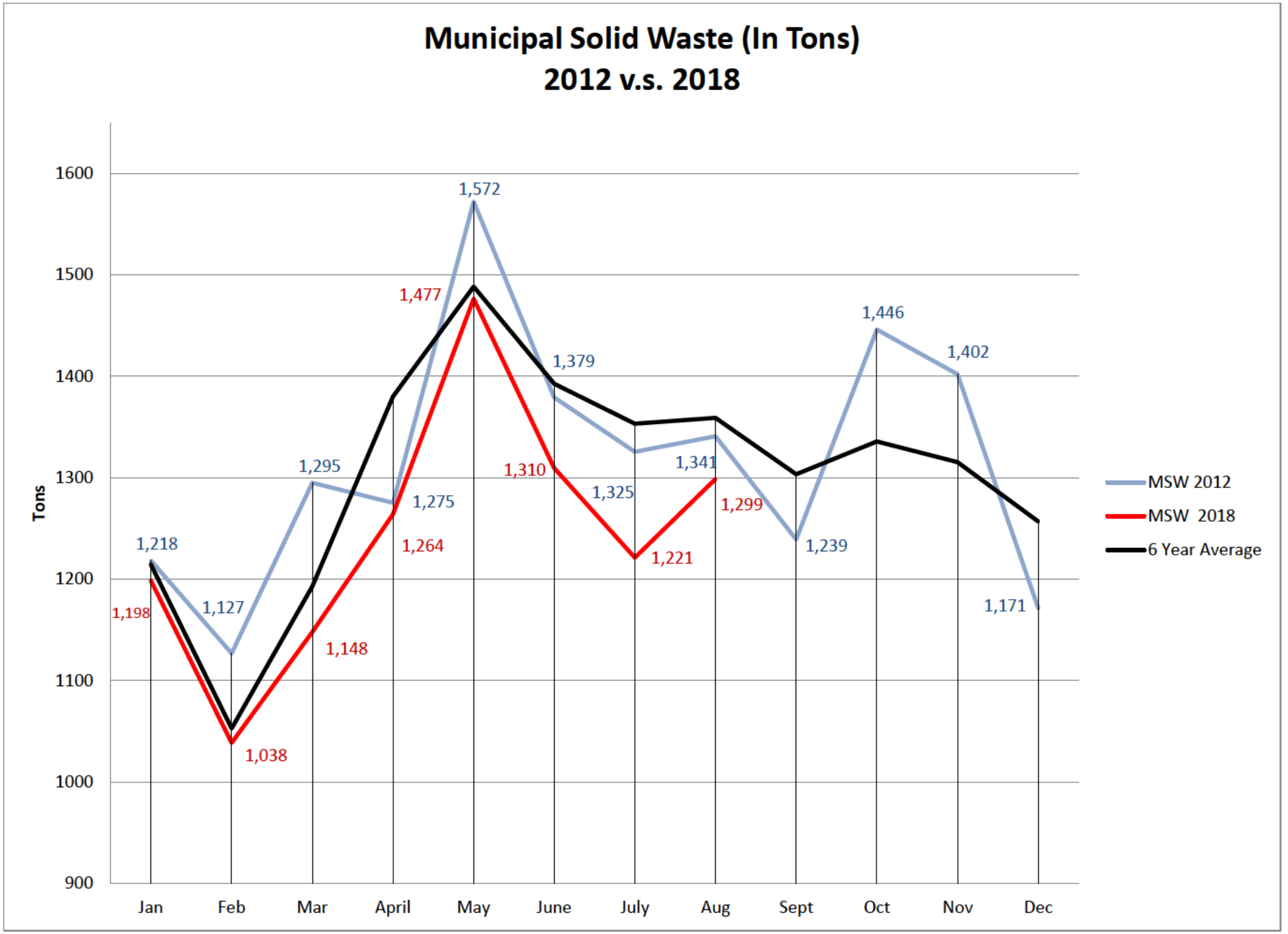
Seattle, Washington has found no association between implementation of PAYT and an increase in illegal dumping. In fact, 60 to 80 percent of the illegal dumping incidents in the city are associated with remodeling waste, old refrigerators, and construction debris—waste that the city suspects comes from small contractors who do hauling on the side. Seattle experienced increased illegal dumping for several months after rate increases in 1987 and 1989. There is no proof that variable can rates contributed to this problem (it may have resulted from higher rates at the city's transfer stations). While problems were not substantial, they did raise concerns among city officials. In response, the city passed an Illegal Dumping Ordinance to prohibit and control dumping. The Utility maintains a small staff to monitor illegal dumping complaints and enforce the ordinance.

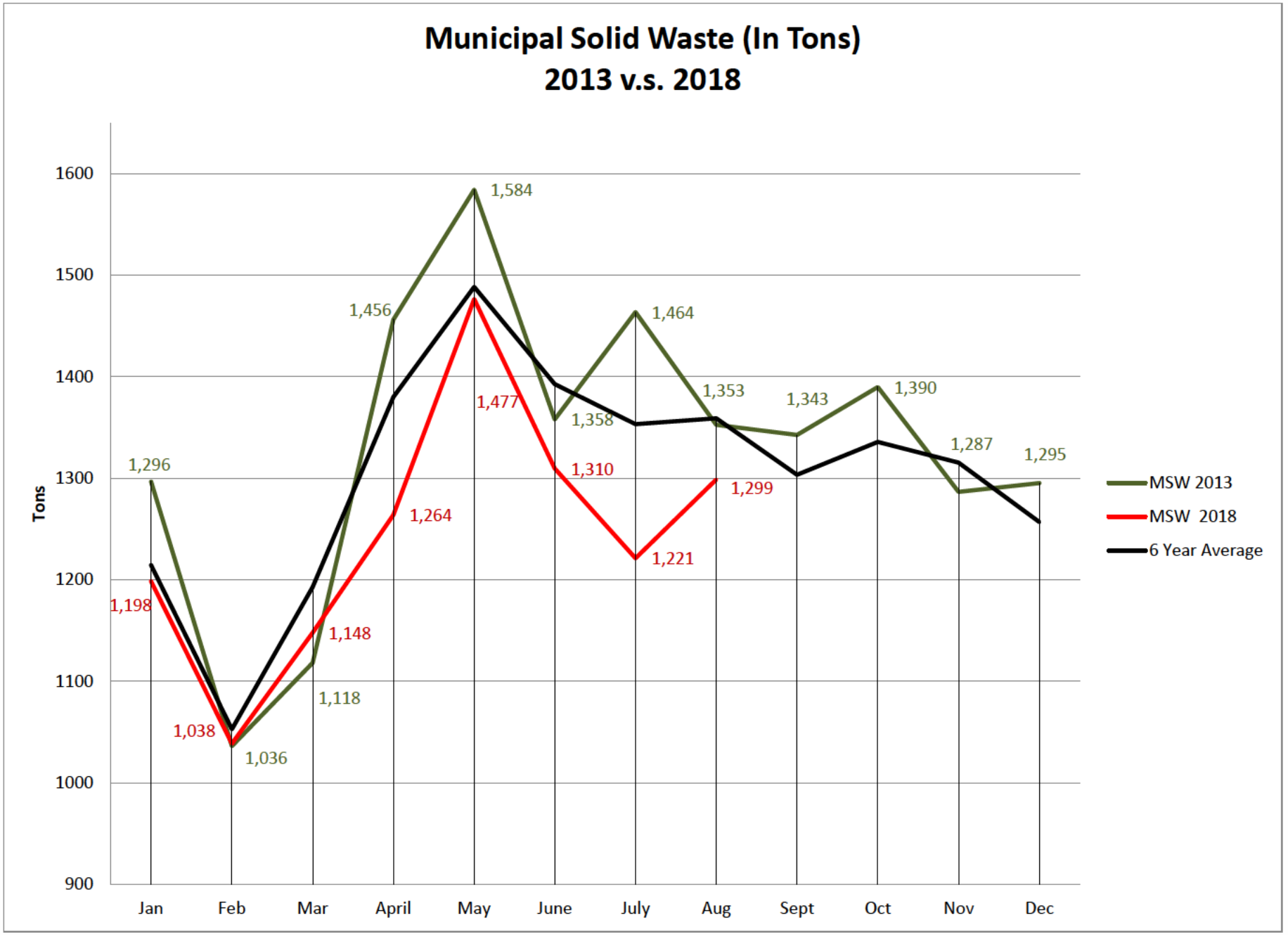
Eighty-nine percent of the city's single family garbage customers subscribe to one-can or mini-can service (64% are one can customers, 25% are mini-can customers). Only 1% of the citizens subscribes to two or more cans of service. These percentages contrast with 1988, when 60% of single family customers subscribed to one can and 39% subscribed to two or more cans. Recycling and yard waste collection tons have increased dramatically over the paste two and a half years. The increases were most dramatic in 1989, when the min-can rate, yard waste collection program, and $9.00/month additional can rate were introduced.

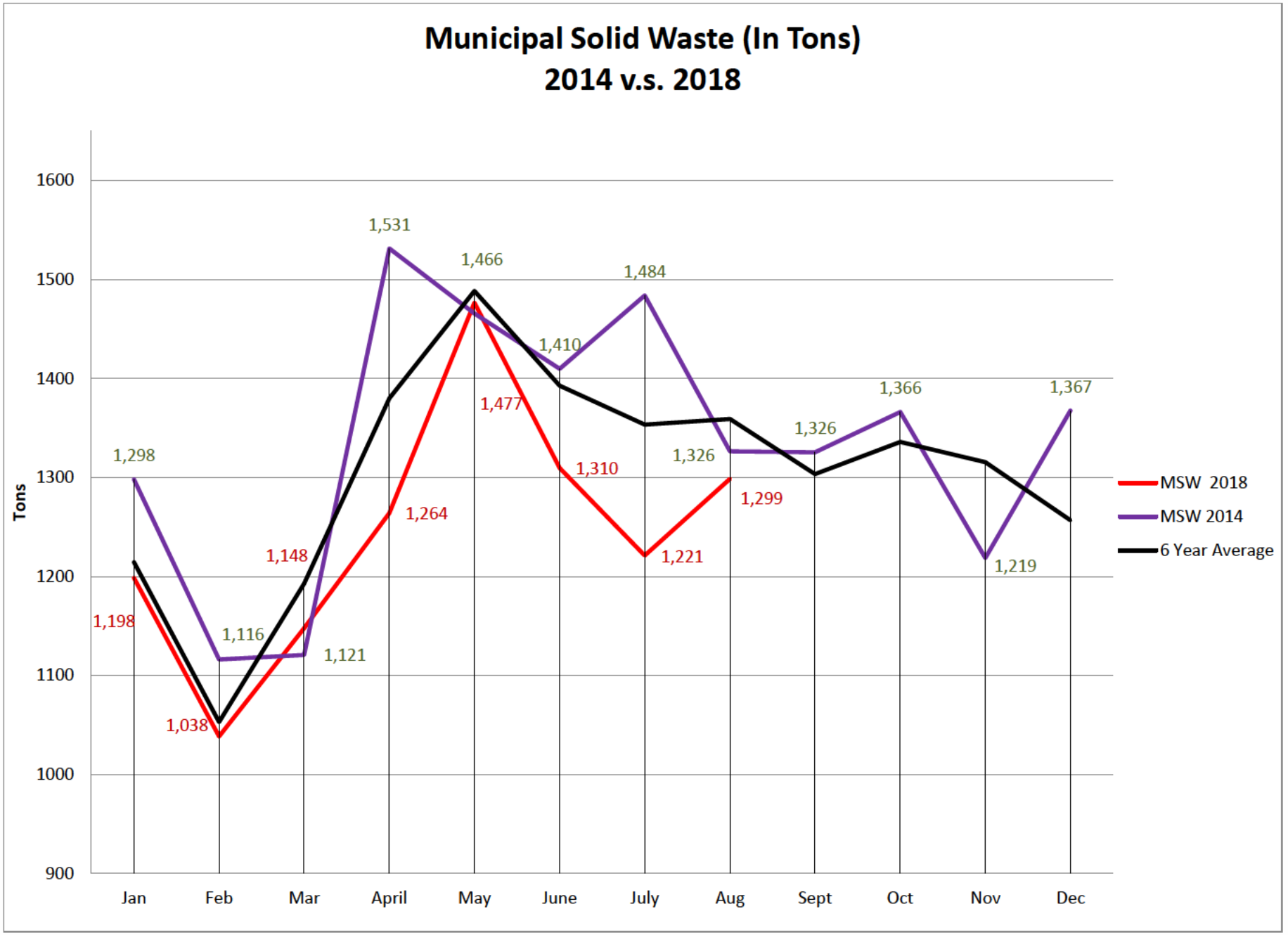
Of the 765,000 tons of waste generated in 1995, 19,000 tons were composted, 33,000 tons were recycled, and the remaining 426,000 tons went to landfills. Recycling has increased from 28% in 1988 to 44% in 1995; single-family homes recycled 60% of their wastestream. From 1988 to 1995 the waste being landfilled has decreased by 8.5% and the waste being recycled and composted has increased by 84%. Seattle, Washington is an excellent example of how a large city can conquer solid waste problems through a volume-based system.

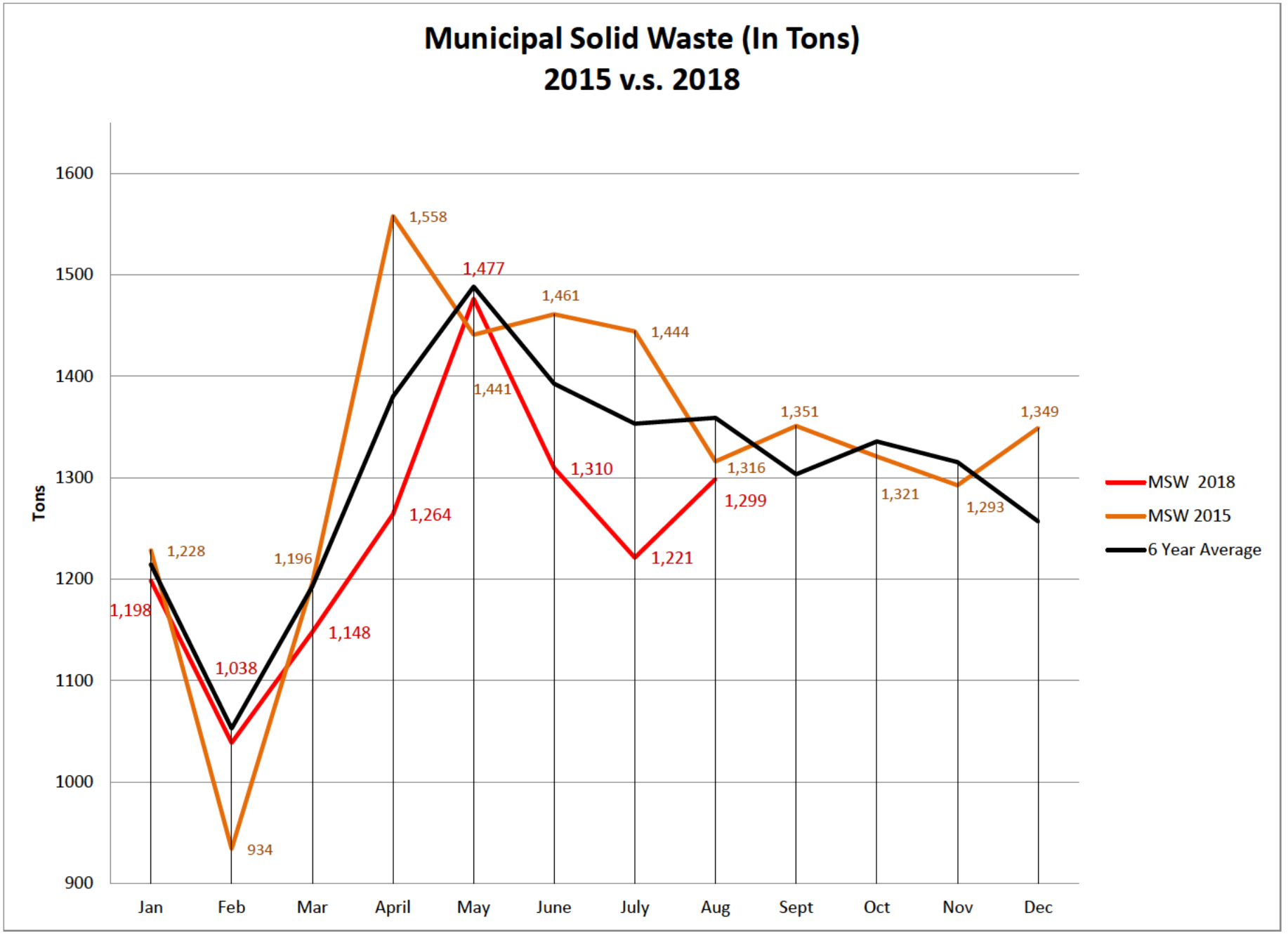
[i] Endnotes

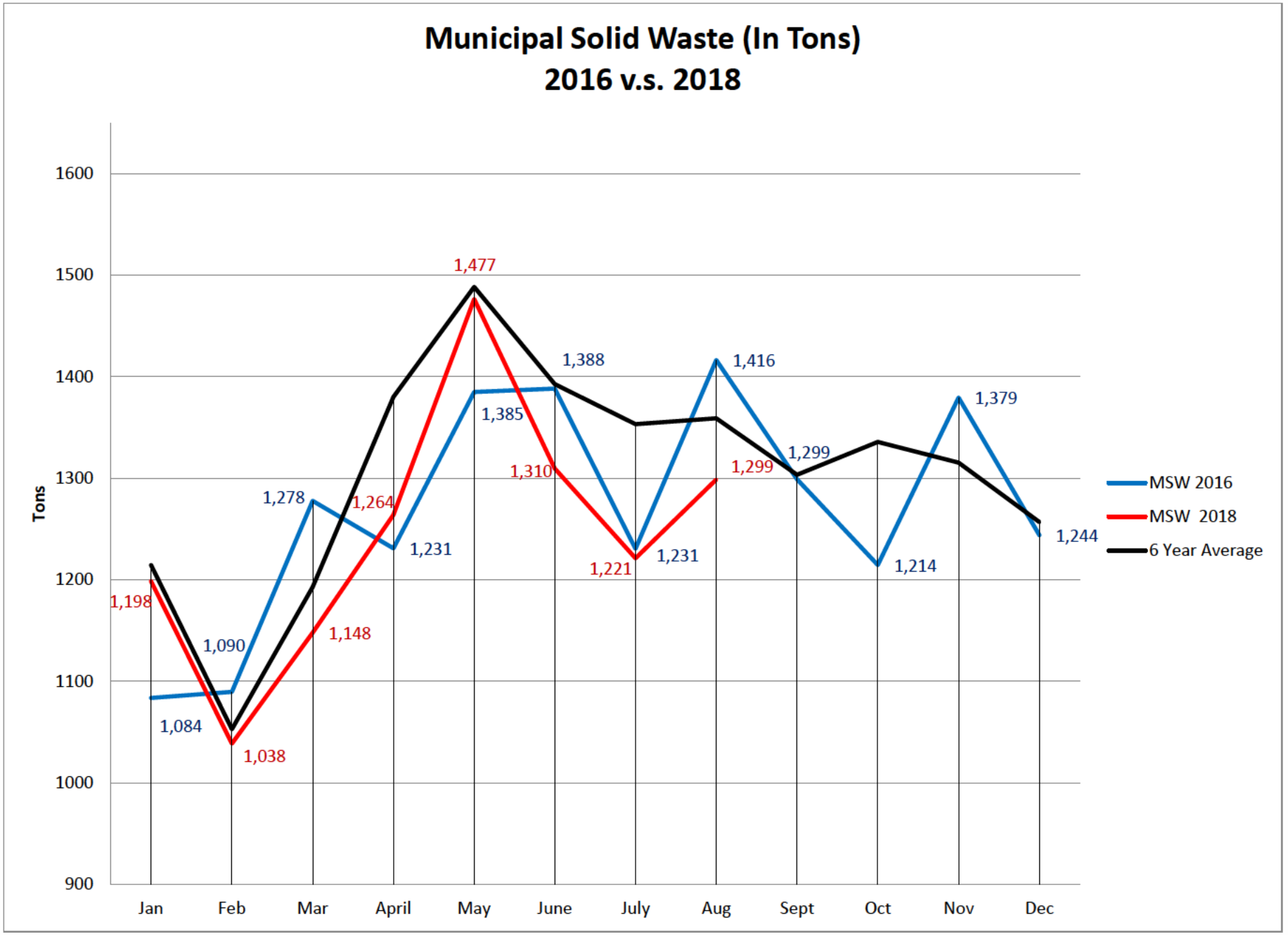
Interview with Bill Chamberlian, April 2000.
[ii] "Are We Throwing It All Away? A Call for New York to recommit to Recycling," Office of the Attorney general of New York State, April 2000, p. 2.
[iii] "Are We Throwing It All Away? A Call for New York to recommit to Recycling," Office of the Attorney general of New York State, April 2000, p. 3.
[iv] NYSDEC, "New York State Solid Waste Management Plan 1997-98 (March 1998).
[8] "Colonie Landfill: Tipping Fees," (spreadsheet printout) Town of Colonie Public Works Department, April 2000.
[3] www.epa.gov (April 20, 2000).
[4] www.epa.gov (April 20, 2000).
[6] www.epa.gov (April 20, 2000).
[10] www.ci.portland.me.us (April 20, 2000).
[11] "City of Binghamton: Solid Waste Management—Summary Report," City of Binghamton Department of Public Works.
[12] www.ci.seattle.wa.us

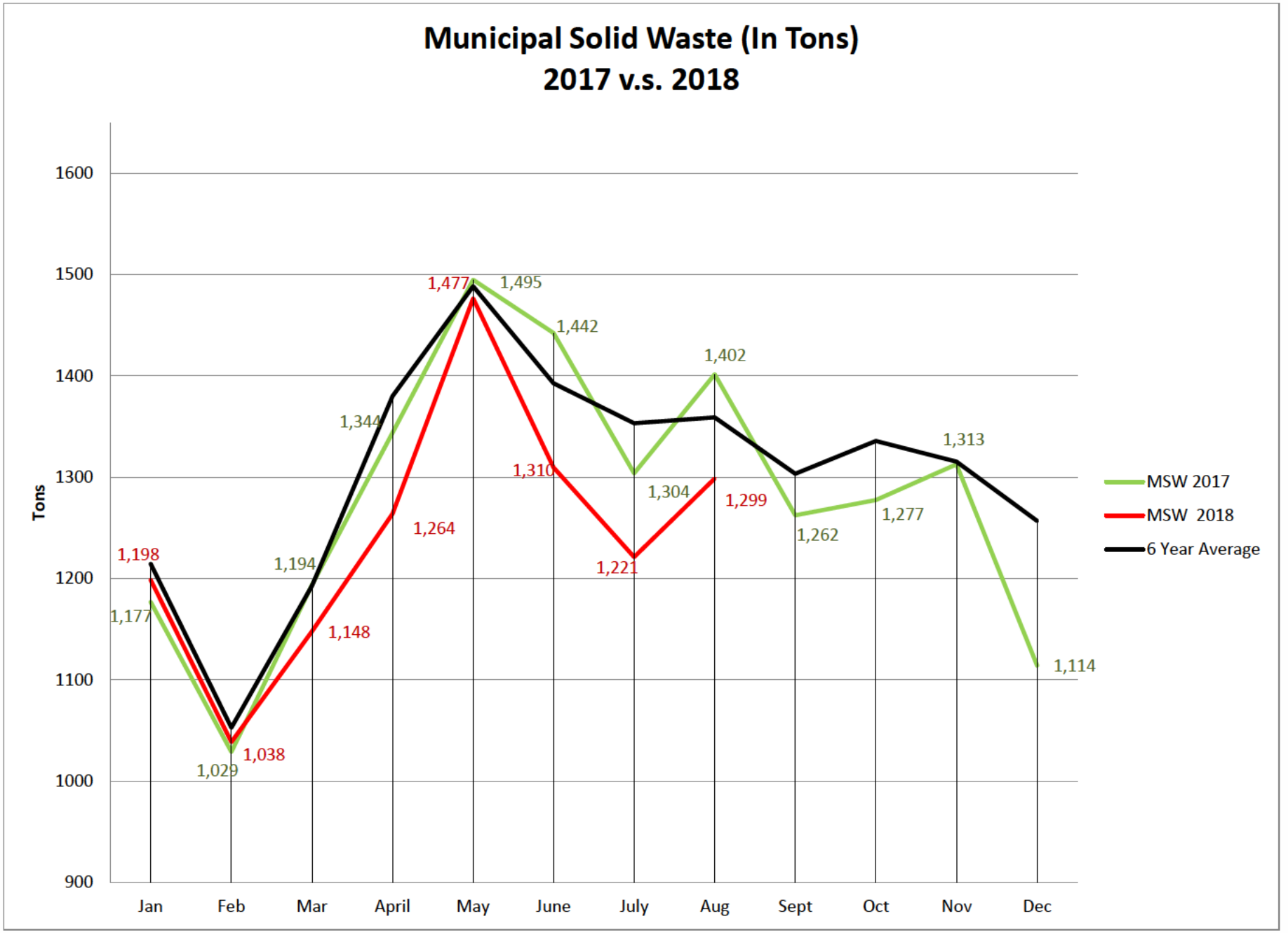

Municipal Solid Waste (In Tons)
2012 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,218
1,127
1,295
1,275
1,572
1,379
1,325
1,341
1,239
1,446
1,402
1,171
1,198
1,038
1,148
1,264
1,477
1,310
1,221
1,299
MSW 2012
MSW 2018
6 Year Average

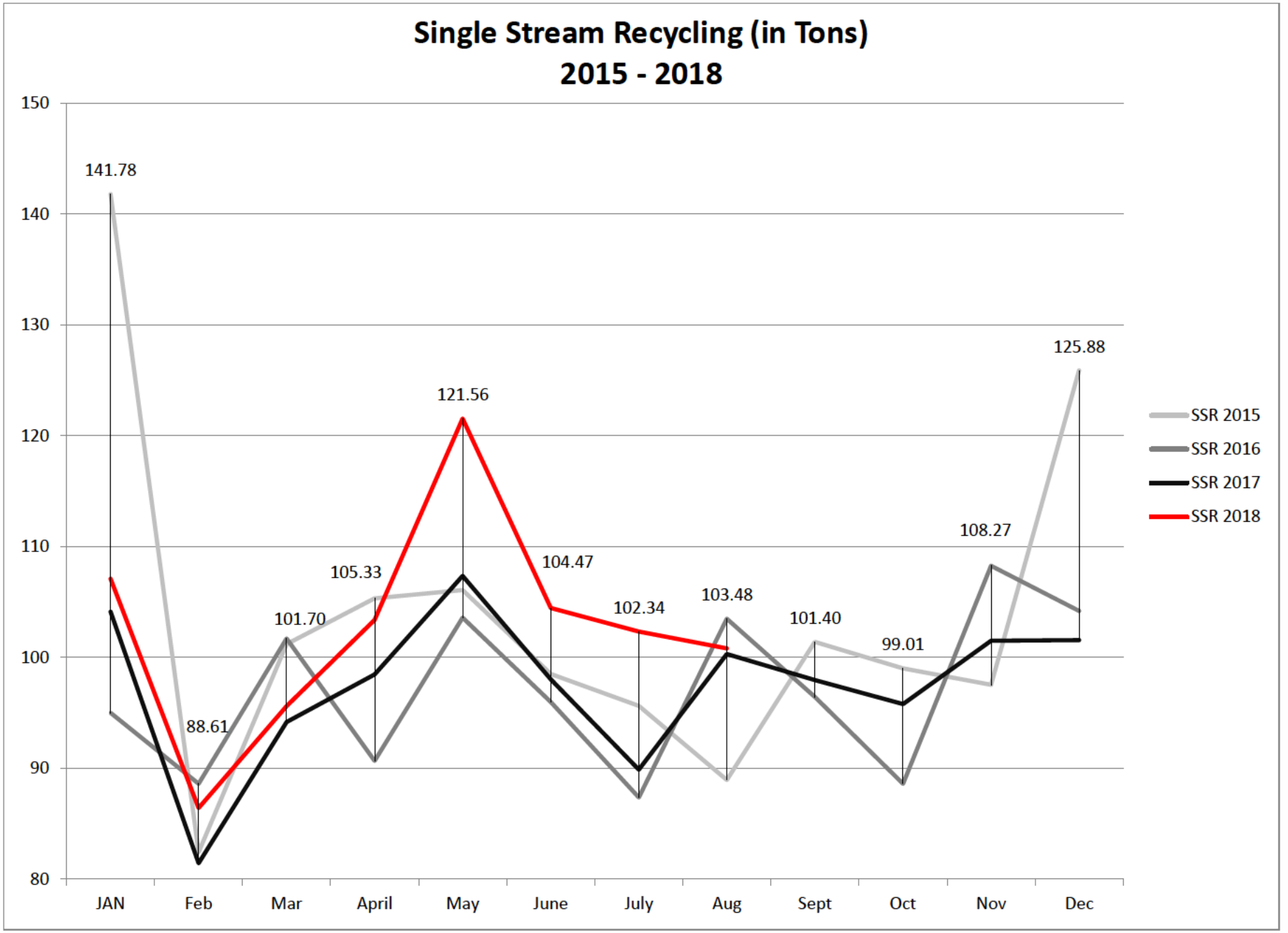

Municipal Solid Waste (In Tons)
2013 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,296
1,198
1,038
1,036
1,118
1,456
1,584
1,358
1,464
1,353
1,343
1,390
1,287
1,295
1,148
1,264
1,477
1,310
1,221
1,299
MSW 2013
MSW 2018
6 Year Average


Municipal Solid Waste (In Tons)
2014 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,298
1,116
1,121
1,531
1,466
1,410
1,484
1,326
1,366
1,219
1,367
1,198
1,038
1,148
1,264
1,477
1,310
1,221
1,299
MSW 2018
MSW 2014
6 Year Average


Municipal Solid Waste (In Tons)
2015 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,198
1,228
1,038
934
1,196
1,558
1,148
1,264
1,477
1,441
1,461
1,310
1,221
1,444
1,299
1,316
1,351
1,321
1,293
1,349
MSW 2018
MSW 2015
6 Year Average


Municipal Solid Waste (In Tons)
2016 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,198
1,084
1,090
1,038
1,278
1,148
1,264
1,231
1,477
1,385
1,388
1,310
1,221
1,231
1,416
1,299
1,299
1,214
1,379
1,244
MSW 2016
MSW 2018
6 Year Average


Municipal Solid Waste (In Tons)
2017 v.s. 2018
Tons
1600
1500
1400
1300
1200
1100
1000
900
Jan
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
1,198
1,177
1,029
1,038
1,194
1,148
1,344
1,264
1,477
1,495
1,310
1,442
1,221
1,304
1,402
1,299
1,262
1,277
1,313
1,114
MSW 2017
MSW 2018
6 Year Average


Single Stream Recycling (in Tons)
2015 - 2018
150
140
130
120
110
100
90
80
141.78
88.61
101.70
105.33
121.56
104.47
102.34
103.48
101.40
99.01
108.27
125.88
JAN
Feb
Mar
April
May
June
July
Aug
Sept
Oct
Nov
Dec
SSR 2015
SSR 2016
SSR 2017
SSR 2018

Times Union photo by Jack Madigan

Tipping Fees

The following lists how much it costs to dump a ton of garbage at Capital District landfills.

Albany County	
Albany	$ 65
Colonie	62
Rensselaer County	
Troy	$ 55
Nassau	80*
Saratoga County	
Austro Bros.	$ 60
Halfmoon	60
Moreau	60
Schenectady County	
Niskayuna	charges by the yard
Rotterdam	$ 45

*members of Eastern Rensselaer County Solid Waste Management Authority pay $50.

Times Union chart

CHEAP DUMP — A BFI trash truck leaves the Troy landfill where business has picked up considerably after the city cut its tipping fees.

Come one, come all

[TIMES UNION 3/1/92]

Capitalism comes to the landfill business as Troy slashes its fees

By Peter Wehrwein
Staff writer

TROY — Mention trash these days and the reaction is likely to be a long, loud howl of "Not in my back yard."

Not in this city.

In January, Troy cut its charge for dumping in the municipal landfill in half, to $55 per ton. The cut-rate tipping fee has attracted hundreds of garbage trucks from outside the city, increased by six times the amount of garbage dumped in the landfill that month, and fattened the city's treasury in the process.

Officials in some Capital District communities are howling about Troy robbing their landfills of business and undercutting their recycling programs.

"This kind of predatory pricing is really unfair to the rest of us," said Albany Public Works Commissioner George Nealon.

Environmentalists question the logic of loading up landfills that are soon to be closed because they don't meet state regulations.

"The thing has been leaking so bad it has to be closed. Why in the world bring in enormous amounts of waste from outside your area?" said Judith Enck of the New York Public Interest Research Group.

In Troy, however, city officials say their landfill has a good environmental track record — and room to spare before its scheduled state-ordered closing in 12 months.

City Manager Steven G. Dworsky said Troy should be praised, not criticized, for providing a service at cheaper rate.

As for the complaints of other landfill officials, Dworsky said, "It sounds to me like Price Chopper talking about Grand Union, quite frankly."

Whatever the pros and cons of the situation, Troy's move to slash its tipping fees is a sign that one principle of old-fashioned capitalism still applies to the world of Capital District trash hauling: Lower prices mean more customers.

Last year, the town of Petersburgh made the same kind of price cut in its tipping fee and also was swamped with trash.

But in most respects, solid-waste disposal in the Capital District is a mixed bag of public and private ownership that resembles nothing out of the pages of Adam Smith's "Wealth of Nations."

In some places, such as Albany, the pickup and hauling of household trash is done by city employees. In other places, like Colonie, private companies do it. The degree of government control over those private companies varies.

Also, the landfills where that trash must be taken are owned and operated by local governments, with the exception of the Austro Bros. landfill in Milton.

In these motley conditions, the tidy laws of supply and demand get messed up.

For example, with the state moving to close down landfills, the supply of what Petersburgh and Troy put up for sale — landfill space — is going down. The price should be going up. But looking ahead to the multimillion-dollar proposition of closing their landfills, municipal officials chose to cut prices to drive up volume and bring up revenue.

In Petersburgh, Supervisor Peter Schaaphok said the surge of trash last year did help the town sock away money toward the $1 million closing of the landfill, a project that involves putting a water-impervious cap over the entire dump.

But in hindsight, Schaaphok, who was just elected in November, wonders whether the town would have been better off fighting the state and keeping the landfill open.

"It was a small, nice little dump. Now it is turned into a mountain. We have no idea what was dumped in there. It was a free-for-all."

Schaaphok added, "My biggest worry is what is going to be leaching out of it in future years."

Other towns have a different strategy, raising the fee and not the volume. In Rotterdam, the tipping fee went from $22 to $45. Only haulers with loads from Rotterdam and neighboring Duanesburg are allowed to use the town's landfill, according to Rotterdam Supervisor James Constantino.

Enck blamed the state Department of Environmental Conservation for "crazy" policies that allow what she sees as pell-mell squandering of precious landfill space. She believes that the state's policy of ordering landfills closed and consolidated needs questioning.

Anthony Adamczyk, the director of EnCon's Region 4, acknowledged that solid waste is "being shipped all over."

But he sees the situation as a temporary one that will pass as the counties arrive at long-term solutions about what to do with their garbage, which could involve building new landfills — Saratoga County has a site picked out in the town of Northumberland — or constructing garbage-burning incinerators — a proposed incinerator in Green Island is being debated.

"We are looking at an interim period of one or two years of unsettled times until the final solutions come into play," Adamczyk said.

Meanwhile, the cash-for-trash register is ringing at the 100-acre Troy landfill, which was built in 1969 on what had been the city's airport.

In just January, the only month for which final figures are available, the city took in $381,145 in tipping fees, compared with $110,266 during the same month last year, an in-the-black difference of $270,879.

By weight, 6,929 tons of trash surged into the landfill in January, compared with 1,002 tons the year before.

Dworsky said the extra cash is going into the city's general fund. The money will help defray the $3 million the city expects to spend on operating the landfill and providing municipal residential trash pickup, he said.

The boom times won't necessarily last, Dworsky noted. Other landfills may drop their fees. Also, noted the city manager, the city's trash revenues dropped by $1 million two years ago when Columbia County stopped shipping its trash to the landfill.

"We are just kind of making that up here. There is not a windfall, so to speak," he said.

Enck put a different spin on it: "I think the city of Troy views this as a cash cow."

Colonie's director of environmental services, Joseph Stockbridge, said Troy's cut-rate deal has cut the flow of garbage to Colonie landfill by one-fourth. Colonie charges $62 per ton.

In the long run, that might be good news, he said, because less trash will extend the life of the landfill, which is the only one in the Capital District operating with full state approval.

But in the meantime, the trash math is not good for Colonie. Stockbridge is watching his revenues shrink as fewer trucks dump their loads in his landfill while his costs basically stay the same.

The flight of Colonie garbage to Troy also could wind up hurting the town's recycling program, Stockbridge said. Haulers have started advertising super-cheap rates in the town, which could get around the recycling separation required of haulers who dump at the town's landfill, he said.

Stockbridge said the town is considering tightening up its licensing rules so haulers would be required to separate recyclable materials and also report where they are taking their trash.

Schenectady officials have expressed alarm about losing trash to Troy. Schenectady charges businesses $85 per ton for trash it sends to Albany's ANSWERS, a combination incinerator and landfill operation. Carl Olsen, the city's waste-collection supervisor, recently said the loss of trash to Troy could wind up costing the city $400,000.

Nealon, the Albany official who oversees ANSWERS, said that during February about a dozen fewer trucks were using Albany's facility, presumably because they were going to Troy instead. Albany's tipping fee is $65 per ton.

Nealon said tipping fees are set based on projections of a certain amount of trash, and now those projections are being undermined by Troy's going-out-of-business sale.

City of Troy, NY
Thursday, September 6, 2018

Chapter 234. Recycling

[HISTORY: Adopted by the City Council of the City of Troy 8-6-1992 (Art. VII of Ch. 14 of the 1973 Code); amended in its entirety 5-3-2007 by Ord. No. 2. Subsequent amendments noted where applicable.]

GENERAL REFERENCES
Housing and property maintenance — See Ch. **176**.
Solid waste— See Ch. **247**.

§ 234-1. Legislative intent.

The intent and objective of this chapter is to promote and protect the public health and welfare by regulating the safe collection and disposal of solid waste; to reduce the amount of solid waste transported to solid waste facilities; to recover recyclable materials and deliver them to their final disposal site; to offer alternative refuse disposal and recycling options; and to encourage participation by the whole community in more efficient solid waste management through a simple and cost-effective recycling plan.

§ 234-2. Definitions.

As used in this chapter, unless otherwise expressly stated, the following terms shall have the meanings indicated:

ABANDONED VEHICLES
All vehicles which are no longer intended for or in condition for legal use on public streets or highways and which do not possess a current New York State Motor Vehicle inspection or registration sticker and shall include but not be limited to cars, buses, trucks, and motorcycles.

ASHES
The residue resulting from the burning of wood, coal, coke, or other combustible material.

ASH RESIDUE
All the solid residue and entrained liquid resulting from the combustion of solid waste, or solid waste in combustion with fossil fuel, at a solid waste incinerator, including bottom ash, boiler ash, fly ash and solid residue of any air pollution control device used at a solid waste incinerator.

CANS
Containers comprised of aluminum, tin, steel, or a combination thereof, which contain or formerly contained food and/or beverage substances.

CARDBOARD
All corrugated cardboard normally used for packing, mailing or shipping of perishable/nonperishable goods, merchandise or other material, but shall not mean wax-coated or soiled cardboard.

CITY COUNCIL
The elected governing body of the City of Troy consisting of six district representatives and three at-large representatives.[1]

COLLECTOR

Any individual or firm permitted by the City, in accordance with this chapter, to manage the collection of recyclable material within the corporate boundarie of the City

COMMERCIAL WASTE

All solid waste emanating from establishments engaged in business. This category includes, but is not limited to, solid waste originating in stores, markets, office buildings, restaurants, shopping centers and theaters, and wa te generated by nonmanufacturing activitie at indu trial facilitie

COMMINGLED

To blend together designated recyclables in one collection device that are separated from the disposable materials in the municipal solid waste stream.

COMMISSIONER

The Commissioner of the City of Troy Department of General Services or the Deputy Mayor in the event that a Commissioner of General Services has not been appointed.
[Amended 12-29-2017 by Ord. No. 133]

COMPOST

Decayed organic matter, including but not limited to yard waste, kitchen scraps, table cleanings, fruit and vegetable parings, decaying vegetable, animal and fruit matter.

CONSTRUCTION AND DEMOLITION DEBRIS WASTE

Wa te and building material, dredging material , grubbing wa te and rubble re ulting from con truction, remodeling, repair and demolition operations on houses, commercial buildings and other structures and pavements.

DEAD ANIMALS

All animal that have died naturally or have been killed, and hall include but not be limited to cat , dog , cows, horses, pigs and rodents.[2]

GARBAGE

All animal and vegetable waste resulting from the handling, processing, preparation, cooking or consumption of food in any private dwelling hou e, multiple dwelling hou e, hotel, re taurant, building, or in titution

GLASS

All clear (flint), green, or brown (amber) colored glass containers, crystal and plate, window, and laminated or mirrored glass, but shall not include wire glass.

HAZARDOUS MATERIALS/HAZARDOUS WASTE

Any refuse the handling or disposal of which, in the opinion of the Commissioner, would constitute a danger to City employees, City property, or the public and shall include but not be limited to radioactive wastes, toxic chemicals, concentrated acids, flammable oils, and pathological wastes.

INDUSTRIAL WASTES

Any and all residue resulting directly from industrial or manufacturing operations and shall include but not be limited to water treatment plant wastes, sewage solids, building wastes, and bulk wastes.

LARGE HOUSEHOLD FURNISHINGS

Any large bulky article actually u ed in the home and which may be u ed for living, including but not limited to chairs, sofas, tables, beds and carpets.

METAL/WHITE GOODS

Any large bulky household mechanisms, including but not limited to refrigerators, washers, dryers, stoves, hot water tank and any other hou ehold item made of aluminum, teel, bra , copper, tainle teel, iron, or any combination thereof, but not including cans, as defined in this section.

NONRECYCLABLE REFUSE

Materials currently not designated as recyclable, including but not limited to rags, sweepings, leather, fabrics, crockery, shells, and similar waste materials.

NEWSPAPER

Newsprint and all newspapers and newspaper advertisements, supplements, comics and enclosures.

PAPER

All high-grade office paper, fine paper, bond paper, low-grade office paper, Xerox paper, mimeo paper, duplication paper, magazines, paperback books, all types of school paper, catalogs, junk mail, computer paper, telephone books, and similar material as specifically designated, but shall not mean newspaper, wax paper, plastic- or foil-coated paper, styrofoam, wax-coated food and beverage containers, carbon paper, blueprint paper, paper contaminated by food, soiled paper, and cardboard.

PLASTICS

Items composed of a plastic-based component, including but not limited to high-density polyethylenes (HDPE), low-density polyethylenes (LDPE), polyethylene terephthalate (PET) and polyvinyl chloride (PVC) or other specific plastics as designated by the City, which contained or contain substances including but not limited to food and/or beverages.

RECYCLABLES

Those solid wastes designated by the City that exhibit the potential to be used repeatedly in place of a virgin material and to be marketable in a cost-effective manner, and shall include but not be limited to clean plastic and glass containers, metal and bimetal cans, dry discarded newspaper, cardboard and flat paper. A list of all designated recyclables shall be maintained on file in the main office of the City's Department of Public Works.

RECYCLING COORDINATOR

That person appointed by the Mayor to coordinate the recycling program, to arrange for the marketing and/or appropriate disposal of collected items, and to perform educational and informational functions.[3]

RESIDENTIAL PREMISES

A building (synonymous with residence) containing one to six residential units; shall not include a hotel, motel or hospital, dormitory, fraternity, sorority, boarding house or nonprofit facility providing client housing services.
[Added 12-29-2017 by Ord. No. 133]

RESIDENTIAL UNIT

An individual enclosed living space providing kitchen, bathroom facilities along with space for sleeping, etc., with its own entrance.
[Added 12-29-2017 by Ord. No. 133]

RUBBISH

All cardboard, plastic, metal or glass food or beverage containers, waste paper, rags, sweepings, small pieces of wood, rubber, leather, and similar waste materials that ordinarily accumulate around a home, business, industry, institution, or public facility.

SCAVENGING

The unauthorized picking through, sorting or removal of recyclable materials following the placement for collection of such materials in or about the City right-of-way.

SOLID WASTE

Materials or substances discharged or rejected as being spent, useless, worthless or in excess by the owner at the time of such discard or rejection, except sewage and other highly diluted water-carried materials or substances and those in gaseous form. Such waste shall include but not be limited to garbage, sludge, rubbish, ashes, incinerator residue, dead animals, abandoned vehicles, industrial wastes, commercial wastes, and construction and demolition debris.

SOLID WASTE COLLECTION PERMIT (SWCP)

That permit issued by the City to an individual or firm which authorizes said individual or firm to collect ome or all categorie of olid wa te, a defined in thi Code, within the boundarie of the City of Troy The Commissioner shall issue each said permit on behalf of the City and he/she shall specify which categories of solid waste may be collected pursuant to said permit.

SOURCE-SEPARATED

The egregation and collection of individual recyclable component before they become mixed into the municipal solid waste stream.

[1] *Editor's Note: The original definition of "City Manager," which immediately followed this definition, was repealed 10-2-2003 by L.L. No. 4-2003.*

[ ] *Editor's Note The former definition of "dwelling unit," which immediately followed this definition, was repealed 12 29 2017 by Ord. No. 133. See now the definition for "residential premises."*

[3] *Editor's Note: The former definition of "residence/multiresidence," which immediately followed this definition, was repealed 12-29-2017 by Ord. No. 133.*

§ 234 3. Preparation and procedures.

A. Preparation. No person shall dispose of recyclables except as follows: Prior to placement for collection and removal, all commingled recyclable mu t be properly tored in a recyclable collection device a approved by the Commissioner of the Department of General Services. Glass, metal and plastic recyclables shall be clean, and all contents shall be removed therefrom; caps shall be removed from glass recyclables, and paper labels shall be removed from metal recyclables. Newspaper and other fiber-based materials for recycling hould be kept dry Additional material may be added ba ed on market availability Preparation requirements may from time to time be changed by the Commissioner of the Department of General Services due to market requirements.
[Amended 12-29-2017 by Ord. No. 133]

B Recyclable collection y tem

(1) General provisions:

(a) It shall be the responsibility of all residents to separate recyclables from all residential solid waste and to place recyclables out for collection. Recyclables shall not be placed in the same container a , or otherwi e mixed with, other form of olid wa te

(b) All residents shall separate designated recyclables and place them in the appropriate collection device either at a centralized collection storage area or curbside, and in accordance with all provisions of this chapter.

(c) It hall be a violation of thi chapter for any per on to collect and di po e of olid wa te which consists of recyclables combined with other forms of solid waste, and (such person) shall be subject to all penalties as outlined in this chapter.

(d) All recyclables placed in curbside containers or placed at recyclables collection areas are con idered the property of the generator until uch recyclable are placed at the curb or alley area for collection by the City or the City's permitted collector.
[Amended 12-29-2017 by Ord. No. 133]

(e) Ownership. Recyclable materials, as defined in this section, once placed at the curb or alley area adjacent to the re idence where regular municipal olid wa te i placed for collection, hall become the property of the City of Troy.

(f) Scavenging.

[1] It shall be a violation of this section for any person to collect, pick up, remove or cause to be collected, picked up or removed, any recyclable placed for collection, without the written permission of the Commissioner of the Department.

[2] Each collection, pickup or removal shall constitute a separate violation of this section and hall be ubject to the following penaltie Any per on committing an offen e of cavenging, as defined in this chapter, shall be guilty of a violation punishable by a fine not to exceed $250 or imprisonment not to exceed 15 days, or both.

(2) Municipal/public system:
[Amended 12 29 2017 by Ord No 133]

(a) The City shall designate either the Department of General Services or by contract, pursuant to applicable state law, an individual or firm to act as the City's recyclables collection and disposal contractor ("the contractor").

(b) Exclu ive right to collect The City of Troy Department of General Service or the de ignated contractor shall have the exclusive right to collect recyclables from any property containing six or fewer residential units.

(c) Recyclable collection device. The Commissioner shall make available to every owner of a property containing ix or fewer re idential unit a recyclable collection ba ket for u e at aid property The first such collection basket shall be made available to the property owner at no charge. Additional baskets for the same property, or replacement baskets for lost or stolen baskets, shall be made available to the property owner by the Commissioner, according to a schedule of charges to be e tabli hed by the Commi ioner The collection ba ket hall remain the property of the City

(d) Residential properties exceeding six units. The owner of any property containing more than six residential units shall contract with a firm or individual having a solid waste collection permit issued by the City for the collection and recycling of recyclables. The property owner shall provide and maintain an appropriate area to receive and tore the recyclable generated by the re ident of the property. The storage area shall be maintained by the property owner in a neat and sanitary condition. Such area shall comply with all regulations of the Department of General Services and any other applicable rules, regulations, ordinances or laws. All recyclables shall be stored in an appropriate container of ufficient ize to hold all the recyclable generated by the u e of the property between scheduled collections.

(e) Nonresidential property. The owner of any nonresidential property, the use of which generates recyclables, shall contract with a firm or individual having a solid waste collection permit issued by the City for the collection and recycling of recyclable The property owner hall provide and maintain an appropriate area to receive and store the recyclables generated by the use of the property. The storage area shall be maintained by the property owner in a neat and sanitary condition. Such area shall comply with all regulations of the Department of General Services and any other applicable rule , regulation , ordinance or law All recyclable hall be tored in an appropriate container of sufficient size to hold all the recyclables generated by the use of the property between scheduled collections.

(f) Mixed-use properties. An owner of a property which is used for nonresidential purposes and which al o contain ix or fewer re idential unit hall comply with all requirement applicable to residential properties containing six or fewer residential units.

(3) Collection devices. All recyclable collection devices to be used within the boundaries of the City of Troy shall be approved by the Commissioner prior to use. Said recyclable collection devices shall include, but not be limited to, ixty gallon, ninety gallon, three hundred and ixty gallon automated pickup containers; twelve-gallon, fourteen-gallon, eighteen-gallon color-coded/marked recycling boxes and compartmentalized roll-offs. Any individual or firm using nonapproved collection devices shall be in violation of this chapter and subject to all penalties included herein.

(4) Mi cellaneou provi ion

(a) If consistent with the rules, regulations and articles of the City of Troy, large household furnishings may be placed curbside or in the alley adjacent to the owner's property to be picked up and

disposed of or recycled by the City, subject to applicable fees for the collection and removal of uch item
[Amended 12-29-2017 by Ord. No. 133]

(b) The Commissioner may periodically provide for the collection of household hazardous materials. It shall be a violation of this chapter to place hazardous materials out for collection by the City or the City′ contractor except a periodically provided for by the Commi ioner

(c) Construction and demolition debris shall not be collected by the City. The generator of construction and demolition debris shall have the responsibility for the removal and authorized disposal of said debris.

(d) Metal/white good hall be collected curb ide by the City and hall be recycled when market conditions permit, subject to any applicable fees for the collection and removal of such items.
[Amended 12-29-2017 by Ord. No. 133]

(e) Reinstatement of fee. The recycling collection fee terminated herein will automatically reinstate at the end of fi cal year 2018, provided the City of Troy ha not completed the implementation of a comprehensive solid waste collection and disposal plan for fiscal year 2019.
[Added 12-29-2017 by Ord. No. 133[1]]
[1] *Editor's Note: This ordinance also redes gnated Subsection* ***B(4)(e)*** *as Subsection* ***B(4)(f)***.

(f) The Commi ioner may make uch rule and regulation , con i tent with thi chapter, a the Commissioner deems necessary to properly conduct the City's recycling program and to further the City Council's legislative intent as expressed in § **234-1** of this chapter.

§ 234-4. Permits for private haulers.

A. Permit required. No commercial hauler shall engage on a regular basis in the business of collecting, transporting, disposing of solid waste, and/or the recyclables generated within the City of Troy without obtaining a olid wa te collection permit (SWCP)

B. Solid waste collection permit application and issuance. The following procedures shall be followed by commercial haulers in order to obtain a solid waste collection permit:

(1) An SWCP application shall be made, in writing, on a form prescribed by the Commissioner, accompanied by a fee of $200, payable to the City of Troy

(2) An SWCP may only be issued after approval of the application by the Commissioner.

(3) Upon the recommendation of the Commissioner to the Mayor, violation of this chapter or any City ordinance may be cause for revocation of the SWCP issued to said individual or firm. Permittee u pected of violating thi chapter or any City ordinance hall be given official written notification of permit revocation.

(4) The effective term of a permit shall be from the date of approval by the Commissioner and shall expire 365 days after said approval. Said permit must be reapplied for a minimum of 15 days prior to expiration

§ 234-5. Enforcement procedures and penalties.

[Amended 12-29-2017 by Ord. No. 133]
Failure to comply with this chapter by any person or firm shall be deemed a violation punishable by a fine no greater than $250 or imprisonment no longer than 15 days, or both. Each day that a violation of this chapter continue hall con titute a eparate offen e puni hable by a fine and/or impri onment

§ 234-6. Amendments.

Based on the recommendations of the Mayor, the City reserves the right to amend this chapter in total or in part.

§ 234-7. Statutory authorization.

This chapter is enacted pursuant to the authority and directive contained in § 120-aa of the General Municipal Law of the State of New York.

§ 234-8. Citizens advisory board.

At the discretion of the Mayor, an advisory board shall be appointed to review and work with the City administration on current and future recycling issues and programs. Said advisory board members shall be appointed by, and serve at the pleasure of, the Mayor and shall receive no financial compensation for their work. Advisory board members shall be residents of the City and shall not hold public office within the City administration. The advisory board shall consist of a minimum of five and a maximum of nine members. The advisory board shall have a Chair who shall preside at all meetings. Meetings of the advisory board shall be scheduled by the Chair in conjunction with the Mayor or his/her designated representative.

City of Troy, NY
Thursday, September 6, 2018

Chapter 247. Solid Waste

[HISTORY: Adopted by the City Council of the City of Troy 3-1-1973 as Articles I through IV of Ch. 14 of the 1973 Code. Amendments noted where applicable.]

GENERAL REFERENCES
Buildings — See Ch. **141**.
Property maintenance — See Ch. **176**.
Junk dealers — See Ch. **185**.
Littering — See Ch. **188**.
Recycling — See Ch. 233.
Discarded refrigerators — See Ch. **235**.
Nuisances — See Ch. **205**.

Article I. Collection and Disposal of Garbage and Refuse

§ 247-1. Title.

This article shall be known as the "Solid Waste Collection and Disposal Ordinance."

§ 247-2. Definitions.

As used in this article, the following terms shall have the meanings indicated.

A. General terms:

CITY
The corporate limits of the City of Troy, New York.

COMMISSIONER
The Commissioner of the Department of General Services of the City of Troy, New York or the Deputy Mayor of the City of Troy, New York in the event the Commissioner position has not been filled.
[Amended 12-29-2017 by Ord. No. 134]

DEPARTMENT
The Department of General Services of the City of Troy, New York.
[Amended 12-29-2017 by Ord. No. 134]

DISPOSAL
The processing, treatment, recycling of waste materials, and the ultimate disposition of these materials on the land or in some other suitable place.

OCCUPANT
An owner occupying premises owned or controlled by him/her or a tenant or renter of such premises.

OWNER
The owner of premises within the City or any agent or other person employed by him/her to manage or maintain such premises.

PERSON

Include one or more per on of either ex, natural per on , corporation , partner hip , a ociation , joint stock companies, societies, clubs, institutions, and all other entities of any kind capable of being sued.

PREMISES

A building or a group of building con tituting a ingle property and the lot or parcel of land on which such building or buildings are located.

RESIDENTIAL UNIT

An individual enclosed living space providing kitchen and bathroom facilities and other space for leeping, etc , with an individual entrance
[Added 12-29-2017 by Ord. No. 134]

SANITARY LANDFILL

The site for the disposal of solid wastes in which they are deposited, compacted and covered with earth at the end of each day, in accordance with Part 19, Refu e Di po al, of the New York State Sanitary Code.[1]

[1] *Editor's Note: The original definition of "Troy Sanitary Landfill," which immediately followed this definition, was deleted 10-2-2003 by L.L. No. 4-2003.*

B Type of building

COMMERCIAL ESTABLISHMENTS

Any establishment which is involved in the selling and marketing of any articles, products, or services and shall include but not be limited to retail stores, restaurants, wholesale operations, service bu ine e , bank , hotel , and other imilar e tabli hment

INDUSTRIAL ESTABLISHMENT

Any establishment which is involved in processing, manufacturing, or treatment operations of raw materials and shall include but not be limited to concrete plants, steel plants, water treatment plants, clothing manufacturer , food proce ing plant , and other imilar e tabli hment

INSTITUTIONAL PREMISES

Any tax-exempt premises and shall include but not be limited to hospitals, churches, religious facilities, charitable facilities, schools, colleges, public buildings and any other nonprofit organizations.
[Amended 12 29 2017 by Ord No 134]

MULTIPLE DWELLINGS PREMISES

Premises containing six or more residential units and shall include apartment houses, fraternity houses, sorority houses and boarding houses.
[Amended 12 29 2017 by Ord No 134]

RESIDENTIAL PREMISES

Premises containing six or less residential units.
[Amended 12-29-2017 by Ord. No. 134]

C Definition of olid wa te , including but not limited to garbage, a he , rubbi h, bulk refu e, yard wa te , dead animals, building wastes, sewage solids, water treatment plant wastes, junk vehicles, and hazardous refuse.

ASHES

The re idue re ulting from the burning of wood, coal, coke, or other combu tible material

BUILDING WASTES

Scrap lumber, concrete, pipe, bricks, plaster, steel, excavation material and similar materials resulting from building construction, maintenance, alteration, and demolition.

BULK REFUSE

Large oversize wastes that require special handling for collection and shall include but not be limited to discarded household furniture, bedding and mattresses, washers, dryers, stoves, refrigerators, bathtubs, crates, tires, etc.

DEAD ANIMALS

All animals that have died naturally or have been killed and shall include but not be limited to cats, dogs, cows, horses, pigs and rodents.

GARBAGE

All animal and vegetable wastes resulting from the handling, processing, preparation, cooking, or consumption of foods in any private dwelling house, multiple dwelling house, hotel, restaurant, building, or institution.

HAZARDOUS REFUSE

Any refuse the handling or disposal of which, in the opinion of the Commissioner, would constitute a danger to City employees or to City property and shall include but not be limited to radioactive wastes, toxic chemicals, concentrated acids, flammable oils, and pathological wastes.

JUNK VEHICLES

All vehicles which are no longer intended or in condition for legal use on the public highways and shall include but not be limited to cars, buses, trucks, and motorcycles.

RECYCLING MATERIALS

All refuse materials designated for recycling as set forth in the Chapter **234** of the City Code.
[Added 12-29-2017 by Ord. No. 134]

RUBBISH

All rags, sweepings, small pieces of wood, rubber, leather, and similar waste materials that ordinarily accumulate around a home, business, industry, institution or public facility.
[Amended 12-29-2017 by Ord. No. 134]

SEWAGE SOLIDS

All human and animal wastes, including but not limited to septic tank pumpings, and grit, sludge, and scum from sewage treatment plants.

WATER TREATMENT PLANT WASTES

All sludges which are collected at water treatment plants.

YARD WASTES

All trees, stumps, branches, brush, shrubs, leaves, and lawn clippings.

D. Nature of solid wastes:

COMMERCIAL WASTES

Garbage, rubbish, bulk, refuse, yard wastes and ashes originating in and around commercial establishments.

HOUSEHOLD WASTES

Ashes, garbage, rubbish, bulk refuse and yard wastes originating in and around private dwellings, multiple dwellings and fraternity houses.

INDUSTRIAL WASTES

Any and all residue resulting directly from industrial or manufacturing operations and shall include but not be limited to water treatment plant wastes, sewage solids, building wastes, and bulk wastes.

INSTITUTIONAL WASTES

Garbage, rubbish, yard wastes, bulk refuse and ashes originating in and around institutional e tabli hment

§ 247-3. Enforcement.

It hall be the duty of the Commi ioner or his/her duly authorized repre entative to enforce the provi ion of this article.

§ 247-4. Penalties for offenses.

[Amended 10-2-2003 by L.L. No. 4-2003]
Any person violating any provision of this article shall be guilty of an offense and, upon conviction thereof, shall be puni hable by a fine not exceeding $250 or impri onment not exceeding 15 day , or by both uch fine and imprisonment, for each offense. Each day that such violation continues shall constitute a separate violation.

Article II. Private Collection

§ 247-5. Permits.

[Amended 10-2-2003 by L.L. No. 4-2003]
No person, firm or corporation, public or private, shall engage in the business of removing solid wastes of any kind from any building, premises, street or public place in the City, unless he, she or it shall first have applied to and obtained from the City Clerk of the City a permit to do o and hall have agreed to conform to the regulations established by this article and any other rules or regulations that may be promulgated by the Rensselaer County Department of Health or the Department of Public Works of said City concerning the removal of solid wastes. The fee for such permit shall be $5 per year for each vehicle used in the removal of such solid wa te , and all permit under thi ection hall expire on the 31 t day of December Said permit hall be nontransferable.

§ 247-6. Applications.

Application for such permit shall be upon forms supplied by the City Clerk. At the time of making such application, the applicant must furnish to the City Clerk a schedule of intended pickup days on the various highways, streets and roads within the City, the schedule of rates and charges to be paid by the respective cu tomer , together with a li t of vehicle to be u ed by the applicant and the licen e number thereof

§ 247-7. Conditions for issuance of permits.

A For an applicant to be i ued a permit for hi /her vehicle for the collection and tran portation of garbage, rubbish, sewage solids and dead animals within the City, the vehicle shall be enclosed, watertight and shall be a compactor unit. For an applicant to be issued a permit for his/her vehicle for the collection and transportation of all other solid wastes within the City, the vehicle shall be enclosed and provided with a cover to completely cover the olid wa te

B. The vehicles used by collectors and the routes of collection shall be subject to inspection and reasonable visitation by the Commissioner or duly accredited and authorized agents of the City.

C. The applicant shall be required to display the nontransferable permit on the right side of the windshield of each vehicle u ed in the operation, howing payment of the permit fee

D. The applicant shall file with his/her application a certificate or affidavit of insurance, executed by representatives of a duly qualified insurance company, evidencing that said insurance company has issued

liability and property damage insurance policies covering the following:

(1) All operation of the applicant or any other per on, firm or corporation employed by him/her in olid waste collection within the corporate limits of the City.

(2) The disposal of such solid waste to and within the designated and approved treatment and/or disposal facility.

(3) Protecting the public and any per on from injurie or damage u tained by rea on of carrying on the work of solid waste collection and disposal.

(4) The certificate or affidavit shall specifically evidence the following amounts of insurance coverage, which shall remain in effect for the term of the permit, and shall provide that written notice shall be given the City Clerk 30 day prior to any change in the condition of the certificate or affidavit or any expiration or cancellation thereof.

Public liability insurance:	$100,000 per person
	$300,000 per accident
Motor vehicle body injury liability:	$300,000 per person
	$1,000,000 per accident
Property damage:	$100,000 per accident

E No collector hall cea e or di continue bu ine in the City unle 30 day ′ prior written notice ha been given to the Commissioner, together with proof of publication in the local newspapers to notify all customers serviced within the City.

F. A permit may be refused or revoked if the applicant shall have been convicted of a misdemeanor or felony which in the judgment of the Commi ioner render the applicant an unfit or unde irable per on or if the applicant shall fail to meet and/or demonstrate the ability to meet the requirements of this article to the satisfaction of the Commissioner, and from such a determination such permit may be refused or revoked by the City Clerk.

Article III. Municipal Collection

§ 247 8. Public services.

[Amended 12-1-1994; 12-29-2017 by Ord. No. 134]

A Solid wa te collection ervice To the extent that olid wa te collection ervice are provided by the City of Troy, such services shall be provided by the Department of General Services. The Commissioner of General Services may draft and publish such regulations as he/she may deem necessary to provide for the proper and effective collection and disposal of solid wastes in the City of Troy. The Commissioner may amend such regulation from time to time a he/ he deem nece ary to provide for the continued effective collection of solid wastes.

B. Garbage, recycling and yard wastes. The collection and disposal of garbage, recycling and yard waste shall be provided to residential premises of six or fewer residential premises and to such other types of premises as the Commi ioner determine to be nece ary and/or de irable

C. Collection and disposal fee. The City of Troy hereby establishes a fee to be charged for the collection and disposal of garbage, recycling and yard wastes by the Department of General Services to assist in defraying the costs associated with such services. This fee for such services shall be entitled the ″garbage/recycling collection ervice fee ″ With the e tabli hment of thi fee, the prior recycling fee e tabli hed by City Code § **234-3** will be discontinued and terminated.

D. Annual fee. The fee schedule for the garbage/recycling collection services fee will be determined on an annual ba i and billed to the recipient of uch ervice on an annual ba i Such garbage/recycling fee hall be subject to review and adjustment in accordance with Subsection **E** below. The number of residential units subject to the garbage/recycling collection fee shall be based on records maintained in the office of the Tax Assessor.

E Fee determination and adju tment procedure The Mayor, a part of the annual budget proce , hall propose the garbage collection services fee for the upcoming fiscal year. The Comptroller will establish and maintain a separate account to track the revenues and expenditures relating to the garbage/recycling services to be provided by the Department of General Services during the course of each fiscal year. The Mayor, at the time of the ubmi ion of the propo ed budget for the upcoming fi cal year, hall provide the City Council with a statement of revenues, expenditures, changes in the account balance and estimated expenditures for the upcoming fiscal year as provided by the Comptroller. Based upon that information, the Mayor shall recommend a garbage collection service fee in an amount sufficient to meet the estimated expenditure for the next fi cal year Upon approval of the budget by the City Council, a copy of the approved fee schedule will be maintained in the office of the City Clerk and in the Department of General Services.

F. Fee limitation. The annual garbage collection service fee as determined by the above process shall not exceed the co t a ociated with the provi ion of the collection ervice by the Department of General Services.

G. Comprehensive solid waste plan. In conjunction with the establishment of this garbage collection service fee, the City of Troy will commence the study for and preparation of a comprehensive plan to address the collection and di po al of all olid wa te in the City in order to develop an optimum y tem for the collection and disposal of such wastes. In formulating such plan, consideration shall be given to, among other things, the establishment of a pay as you throw collection and disposal system, single-stream recycling and composting of organic wastes, additional steps to significantly reduce the volume of solid wastes being ent to increa ingly limited landfill , reduction in tipping fee and tran portation co t to the City, reduction in litter and improvement in the appearance of the City and identification of possible additional revenue streams for the City.

H. Termination of fee. The garbage collection service fee established herein will automatically terminate at the end of fi cal year 2018 at which time the City of Troy Comprehen ive Solid Wa te Collection and Di po al Plan will have been completed, with implementation of such plan in fiscal year 2019.

I. Garbage collection service fee exemptions.

(1.) The owner of an owner-occupied residential premises who has qualified for an Enhanced STAR reduction a indicated by record maintained in the office of the City A e or hall be entitled to an exemption from the garbage collection service fee for the residential unit in which the owner is actually residing.

(2.) An owner of premises that is duly listed on the City Vacant Building Registry and for which the vacant building fee payment i current hall be entitled to an exemption from the garbage collection ervice fee unless it is determined by the Office of Code Enforcement that solid waste materials are being generated and/or deposited at the site of such vacant building.

(3.) The owner of an owner-occupied residential premise containing up to two residential units who has elected not to rent uch re idential unit( ) on a permanent ba i hall be entitled to an exemption from the garbage/recycling collection fee for such nonrented residential unit(s) upon the filing of an exemption application form with the Office of Code Enforcement and subsequent verification of such vacancy by Code Enforcement personnel.

J Nonre ident utilization The garbage/recycling collection and di po al ervice are provided for the benefit of residents and premises located in the City of Troy and no person or entity shall transport any garbage, recycling or yard wastes into the City in order to utilize such collection and disposal services.

K. Additional solid waste materials. The Commissioner may also establish and amend such procedures, regulations and fee schedules as deemed necessary to effectively deal with the collection and disposal of other types of solid waste materials from premises located in the City of Troy. Such procedures, regulations and fee schedules shall take effect upon approval by the Mayor and filing in the Office of the City Clerk and the Department of General Services.

L. Late payment interest charges. A monthly interest charge of 3% shall be added to any delinquent installment. No interest shall be charged for the month of May 2018.
[Added 6-7-2018 by Ord. No. 38]

§ 247-9. Duties of owners and occupants.

[Amended 10-6-1977]

A. The owner or occupant of any lot, store, building or house in said City who may desire that any of the solid wastes covered by the provisions of this chapter should be removed by the Department of Public Works, or by a contractor engaged by the City or by scavengers employed by individual owners, from the premises owned or occupied by him, shall secure the same in heavy-duty plastic bags tied at the top, or specially treated paper bags and deposit same, in the case of garbage or moist or liquid waste, in water-tight, covered wooden, plastic or metal containers and, in the case of ashes or dry waste or rubbish, in covered plastic or metal containers.
[Amended 5-1-2003 by Ord. No. 4]

B. In the case of commercial and industrial waste such as cardboard boxes, crates, cartons, etc., all such solid wastes must be flattened and securely tied for removal. All bulk refuse shall be placed at the curb at the time specified by the Department. Leaves and lawn clippings shall be placed in approved containers. Tree trimmings and hedge trimmings shall be securely tied in bundles not heavier than 75 pounds and not more than five feet in length nor more than 18 inches in diameter. The City shall not provide collection for hazardous refuse, junk vehicles or sewage solids. All other solid wastes shall be placed in acceptable containers not exceeding 50 pounds in weight or 20 gallons in capacity.

C. Standard containers which have rusted through the sides or bottom or are bent, dented or damaged to the extent that they are not water-, fly- or rodent-tight shall not be used for storing solid wastes. These containers may be classed as solid waste and collected and disposed of as such by the person or agency responsible for the collection of solid wastes. The person or agency shall first place a tag upon such receptacle, stating that the receptacle fails to meet the requirements of this article. In the event that the container is not repaired or replaced before the next collection period, it shall be collected as solid waste.

D. All sweepings of sidewalks or premises must be picked up and placed in such containers.

E. Such containers, when filled with solid wastes to be removed, shall be placed at the curb adjacent to the premises owned or occupied by him/her or, if there be an alley in the rear of such premises, in such alley close to such premises, not more than 12 hours before collection of solid wastes in the residential areas and not more than 10 hours before collection of solid wastes in the business areas of the City.

F. It shall be the duty of such owner or occupant to cause wooden, plastic or metal containers, when emptied of their contents by the Department, to be removed from the curb or alley.

G. All solid waste containers shall be marked for identification by the owner, either by name or street number.

§ 247-10. Tampering with containers.

No person or persons shall place on any sidewalk, public street or public place, solid wastes of any kind, unless such is in an approved container, and it shall be unlawful for any person or persons to disturb, remove or aid in disturbing or removing any material after it has been set out in containers for removal, except by those employed and duly authorized to collect and remove such material.

§ 247-11. Emergency collection and disposal.

In the event of a public emergency declared by the Mayor, the Commissioner may provide by contract for the public collection, removal and disposal of solid wastes. Contracts for periods of 30 days or less may be negotiated by the Commissioner without receiving formal bids. Contracts for periods exceeding 30 days shall be awarded on the basis of sealed bids received after advertisement therefor by the City. In any case, the Commissioner may impose such conditions as he/she may deem advisable and shall supervise all work under such contracts.

§ 247-12. Accumulation of solid wastes.

A. The accumulation of any solid wastes for more than seven days on any premises within the City shall be prohibited.

B. The owner or occupant of such premises within the City shall be responsible for the placement of all such solid wastes which may accumulate on the property owned or occupied by him/her at the curbside or alley collection point for collection by the Department or by a contractor engaged by the City.

Article IV. Private Disposal Areas

§ 247-13. Intent.

It is hereby determined by the City Council that the filling of land areas located on private property within the City involves the safety, health and welfare of the City at large; that many times owners and others have used combustible, unsuitable and unsanitary materials to accomplish such landfill, thereby creating fire hazards dangerous to life and safety of the citizens of the City and dangerous to nearby property, creating health hazards by attracting rodents, vermin and disease-bearing insects, endangering the health and well being of those living in the vicinity and creating unsightly and squalid areas which diminish the assessable value of other real property in the locality and detract from the desirability and possibility of anyone purchasing, improving and adding to the value of surrounding vacant land. This article is intended and designed to eliminate such hazards and such devaluing conditions.

§ 247-14. Fill material.

All solid wastes originating within the City, except garbage, rubbish, dead animals, sewage solids and hazardous refuse shall be allowed to be disposed of in an approved private disposal site within the limits of the City of Troy.

§ 247-15. Permits.

A. It shall be unlawful for any person to fill or to cause to be filled any land within the City limits without obtaining a permit from the City Clerk.

B. In order for a permit to be issued for operation of a private landfill, the person must do the following:

(1) File an application with the Commissioner along with a plot plan, describing the boundaries of the proposed landfill site, the existing and proposed final contours of the site, the proposed drainage and utilities on the site, the source and type of fill material, the proposed method of transporting the fill, and the method of compacting and covering the solid waste daily.

(2) The applicant must submit adequate proof of ownership of the proposed site.

(3) The applicant must also submit evidence of approval of the site by the Rensselaer County Health Department.

(4) The application will then be sent to the Troy City Council for final approval.

(5) If the City Council approves the application, the applicant must then pay the City Clerk a $5 fee before the permit is issued. This permit for the approved site shall expire on December 31 of each year and may be renewed by the applicant for a $5 fee and by filing an affidavit stating that the landfill is being run in accordance with the provisions of the original application and with the provisions of this article.

C. The person who is issued the permit will be responsible for the proper operation of the private landfill site.

D. If, after the issuance of such a permit, the person holding the same violates the provisions of this article, the Commissioner may forthwith revoke any such permit heretofore issued.

§ 247-16. Exceptions.

A. Nothing herein contained shall prevent the City of Troy from operating or entering into contracts, leasing or licensing agreements with any person for the operation, use or management of landfill operations on City-owned lands within the limits of the City of Troy.

B. The normal use of gravel fill and top soil originating from outside the City shall be permitted for landfill use within the City without the necessity of obtaining a permit.

§ 247-17. Operating regulations.

A. All private solid waste disposal sites shall comply in every detail to the standards set forth in this article and with all applicable federal, state and county laws.

B. All private solid waste disposal sites shall be operated as sanitary landfill and thus be covered with at least six inches of gravel at the end of each day.

C. The final covering for surface and side slopes for each finished section shall be maintained at a compacted depth of 24 inches of earth.

D. After the active period of the filling operation is completed, maintenance programs shall be continued, including necessary seeding with grass cover or other shrubbery vegetation, until the fill has become stabilized, so as to insure prompt repair of cracks, depressions and erosion of the surface and side slopes. Also proper drainage must be maintained at the private disposal site during and after completion of the landfill operation.

E. The private disposal site shall be visited by City officials on a regular basis to inspect the operation.

Article V. Fees

[Added 11-2-1995 by L.L. No. 6-1995 (Art. XXXI of Sub-Part C of Part I of the 1973 Code)]

§ 247-18. Unpaid fees or charges added to annual tax levy.

All unpaid fees or charges for municipal or municipally contracted solid waste collection and/or disposal services imposed on or after the effective date of this local law, including penalties or interest and not paid by December 1 of each year, shall be added to the annual City tax levy.

§ 247-19. Statement of arrears.

The City Council shall annually cause a statement to be prepared setting forth each amount of solid waste disposal and/or collection fees in arrears as of December 1 of each year. Such statement shall be presented to the City Council, which shall levy such amounts remaining unpaid on the date taxes are levied against the real property for which or in connection with which such solid waste services were provided.

City of Troy, NY
Thursday, September 6, 2018

Chapter 188. Littering

[Adopted by the City Council of the City of Troy 7-7-1983 (Art. VI of Ch. 14 of the 1973 Code). Amendments noted where applicable.]

GENERAL REFERENCES
Property maintenance — See Ch. **176**.
Recycling — See Ch. **234**.
Garbage and refuse — See Ch. **247**.

§ 188-0. Definitions.

[Added 9-4-2014 by Ord. No. 53]
As used in this chapter, the following terms shall have the meanings indicated:

LITTER
For the purposes of this chapter, the term "litter" means all waste materials, including, but not limited to, bottles, glass, tobacco products, crockery, cans, scrap metal, junk, bulk refuse, paper, garbage, rubbish, old automobiles or parts of automobiles or similar refuse.

§ 188-1. Enforcement.

[Amended 9-4-2014 by Ord. No. 53]
It shall be the duty of the police and the Department of Public Works and Code Enforcement inspectors of the City and the Mayor and/or the Commissioner of the Department of Public Works and their duly authorized representatives to enforce the provisions of this chapter.

§ 188-2. Unlawful use of public litter receptacles.

A. No persons shall deposit in public litter receptacles rubbish or garbage from their household or business.

B. No person shall throw any inflammatory objects into public litter receptacles.

§ 188-3. Littering streets and other public places.

A. No person shall sweep or deposit litter in or upon any street, sidewalk or other public place within the City.

B. No person shall sweep into or deposit in any gutter, street or other public place within the City the accumulation of litter from any building or lot or any litter from any public or private sidewalk or driveway.

§ 188-4. Littering parks.

No person shall throw or deposit litter in any park within the City. Where public receptacles are not provided, all litter shall be carried away from the park by the person responsible for its presence and properly disposed of elsewhere.

§ 188-5. Throwing litter from vehicles.

No person, being the driver or a passenger in a vehicle, shall throw or deposit litter upon any street or public place within the City or upon any private property.

§ 188 6. Transportation of ashes, rubbish, boxes.

No per on hall tran port in any truck or other vehicle or in any manner, through the public treet of the City, streets to which the public has access, or over any land owned or controlled by the City, any ashes, waste material, rubbish, discarded boxes, barrels or other containers of merchandise or discarded material of any kind or description consigned to a dump or to any other destination, unless the same is conveyed or transported in a truck, vehicle or other manner entirely covered or enclo ed o that material cannot e cape while being o transported. In the event the same shall be transported or conveyed other than in an entirely enclosed truck, vehicle or otherwise, such material being so transported and conveyed shall be covered by a canvas or covering of a similar nature, securely fastened so as to prevent the material from escaping the truck or other vehicle onto the treet , idewalk , way , public land or private property It hall be unlawful for any per on to o convey and transport ashes, rubbish, waste or discarded material of any nature through the public streets of the City, on ways open to the public or over land owned or controlled by the public, or willfully to deposit or negligently allow such material to escape onto the streets and other places while being so transported and conveyed. It shall be the duty of every per on tran porting and conveying uch material to top and recover the ame, in the event of any escape or loss thereof, irrespective of the cause of the escape or loss.

§ 188-7. Unlawful deposits.

No person shall throw, place or scatter, or cause or permit any person in his/her employ to throw, place or scatter, any dung, dead animal, carrion, putrid, decayed, diseased or stale meat, entrails or offal of fish or animals, oyster or clam shells, vegetable matter, coal or other ashes, papers, rags, straw, rubbish, the sweepings or refuse of any tore, hou e, lot or building, dirty water, offen ive ub tance, liquid or matter of any kind what oever, or anything which is a nuisance or detrimental to health, in or upon any public street in the City, except as provided and allowed in this chapter; nor shall any person in any manner obstruct the free passage of the water in the gutters along the public streets in the City; nor shall any person set fire to any such articles, matters or ub tance upon any public treet

§ 188-8. Unlawful deposits in waterways.

No per on hall throw or depo it in any pond, brook or natural waterway within the limit of the City any dead animal, dead fish or fish waste, rubbish, filth, foul or offensive substance, or any refuse matter whatsoever, fuel, lubricating oil, fish oil or other greasy substance, so that the same shall create a danger to the public health, safety and welfare.

§ 188 9. Unlawful deposits in Hudson River.

No person shall throw or deposit or permit to be thrown or deposited in that part of the Hudson River opposite the corporate limit of the city lying between the ea t bank of the river and the center of the river any coal, a he , cinders, garbage, earth, refuse or other heavy substance or litter; and no owner, lessee or occupant of any lands or buildings adjacent to the river and within the limits herein mentioned shall permit any coal, ashes, cinders, garbage, earth, refuse or other heavy substances or litter to be deposited upon such lands in such a manner that the ame may fall into the river or be carried into the river in time of flood or high water

§ 188-10. Posting notices.

No person shall knowingly post or affix any notice, poster, sign or other paper or device calculated to attract the attention of the public, to any public lamppost, public utility pole or public shade tree, or upon any public structure or building, except as may be authorized or required by law.

§ 188-11. Deposit of litter on occupied private property.

No person shall throw or deposit litter on any occupied private property within the City in such a manner that it tends to create a danger to the public health, safety and welfare, whether owned by such person or not; except that the owner or person in control of private property may maintain private receptacles for collection, as authorized by this chapter. Litter will be prevented from being carried or deposited by the elements from any such occupied private property to the streets, sidewalk or other public place or upon any private property.

§ 188-12. Deposit of litter on open or vacant property.

No person shall throw or deposit litter on any open or vacant property within the City, whether owned by such person or not.

§ 188-13. Duty to maintain private property free of litter.

The owner or person in control of any private property shall at all times maintain his/her premises free of litter. This section shall not prohibit the storage of litter in authorized private receptacles for collection.

§ 188-14. Duty to keep sidewalks free of litter.

Persons owning or occupying property shall keep the sidewalks and gutters in front of their premises free of litter.

§ 188-15. Notice to dispose of litter.

[Amended 10-5-1989; 9-4-2014 by Ord. No. 53]

A. The police and Department of Public Works and Code Enforcement inspectors of the City and the Mayor and/or the Commissioner of the Department of Public Works of the City and their duly authorized representatives are hereby authorized and empowered to notify any persons owning or occupying private property within the City, or the agent of any such person, to properly dispose of litter located on the property or the sidewalks or gutters adjoining such premises in violation of §§ **188-11**, **188-12**, **188-13** and **188-14** of this chapter.

B. Said persons shall have 24 hours from the time such notice is made to do so to dispose of the litter. Persons receiving notices given on a Friday shall have 48 hours to comply. However, depending on the severity of the conditions observed at the time of inspection, the City reserves the right to immediately order the collection of the litter and any associated debris and subsequently invoice the owner for the services provided by the City.

C. The notices prescribed herein shall apply only to violations of §§ **188-11**, **188-12**, **188-13** and **188-14** of this chapter; it shall be sufficient if such notice is oral and communicated to the person owning or occupying the private property or to the agent of such person.

§ 188-16. Littering by solid waste collectors.

Private solid waste collectors shall not permit solid wastes of any kind to fall or collect upon the highway, roadway, street or ground from which they are collecting or over which route they are traveling, nor shall they

permit solid wastes to set out or to fall from any vehicle or in any way become distributed upon or along private property or on the public highway , roadway , treet or thoroughfare Such littering hall be cau e for revocation of their permit.

§ 188-17. Improper disposal of containers.

No person shall break, leave, discard or deposit in any manner any glass bottle, glassware, crockery, can or container of any kind, make or description in or on any public place of any nature within the City or on any private property unless and except that it is part of the act of depositing the same in a trash device specifically de igned for the retention of tra h

§ 188-18. Illegal dumping.

[Amended 7-7-1988; 10-2-2003 by L.L. No. 4-2003; 9-4-2014 by Ord. No. 53]

All categories of waste material, including but not limited to garbage, rubbish, bulk refuse, construction and demolition material, scrap metal or any similar type of waste material, shall only be placed for collection, either by private or municipal ervice , at the location from which the wa te material wa generated Wa te material deposited at a location within the City other than the location/property address from which the waste material was generated shall be considered illegal dumping and shall be subject to all appropriate fees, fines and penalties provide for in this chapter.

§ 188 19. Penalties for offenses; collection fees for municipal services.

[Amended 4-1-2004 by Ord. No. 3; 9-4-2014 by Ord. No. 53]

A. Collection fees:

(1) Except as provided in Subsection **C**, any person committing an offense of any provision of this chapter hall be guilty of a violation of the City Code, and in the event that municipal collection of the wa te identified as being in violation is authorized in accordance with § 188-1A, the owner of the property in violation shall be subject to collection fees.

(2) The minimum collection fee for all municipal collection services shall be $75, with the exception of con truction and demolition material, which hall carry a minimum fee of $150 Collection fee in excess of the minimum fees shall be based on both the volume of waste to be collected and the sanitary conditions of the waste. A determination on additional fees shall be made by the inspecting officer, sanitation inspector, or code inspector in consultation with the Mayor and/or the Commissioner of the Department of Public work and their duly authorized repre entative

(3) Written notice of collection fees shall be provided, via regular mail, to the property owner of the property in violation. Said notice shall include a photograph of the waste violation. Property owners shall have 45 days to make payment from the date of the notice. All unpaid collection fees shall be relevied, plu penaltie , on the property owner′ property taxe for the ub equent year to the date the collection notice was issued. Collection fees delinquent for 45 days or more will be relevied to the City of Troy Tax bill after November 1. For the purpose of this chapter, the calendar year for collection fees shall be November 2 through November 1.

(4) For the purpo e of thi chapter, the following guideline hall be followed relative to wa te collection

(a) Collection of a quantity of waste that is reasonably judged to fit inside the box of a standard size City pickup truck shall be collected at no charge, provided that the waste was generated from an owner-occupied single-, two-, three- or four-unit residence.

(b) Collections that exceed a pickup truck volume from an owner-occupied single-, two-, three- or four unit re idence hall be collected and an appropriate charge, in accordance with § **188 19A(2)**, shall be billed to the property owner of said property.

(c) Properties, including residential rental properties containing single, two, three or four units, where the property owner does not reside shall be treated as a commercial property (business). Collection of any quantity of wa te, including but not limited to bulk refu e, hall be collected, and an appropriate charge, in accordance with § **188-19A(2)**, shall be billed to the property owner of said property.

(d) The following classification of properties, including but not limited to commercial rental propertie (office , whole ale/retail bu ine e , apartment building), tax exempt propertie and not-for profit agencies, shall not receive municipal bulk refuse collections. These properties shall be responsible for bulk refuse removal through the use of private contractors.

B. Any person committing an offense of illegal dumping as set forth in § **188-18** shall be guilty of a violation puni hable by a fine, impri onment, or both, for each offen e The fine hall be a minimum fine of $200 for each occurrence, with the maximum fine not to exceed $500 per offense. A sentence of incarceration shall not exceed 15 days per offense.

C. Fine; civil penalty. In addition to the collection of costs associated with the removal or cleanup of garbage, refu e or wa te material found in violation of thi chapter by the City, any per on violating thi chapter hall be punished by a fine in City Court pursuant to Subsection **A** or **B** of this section or a civil penalty recovered in accordance with § **188-20** of this chapter in the following amounts:

Violation	**Penalty**
First	$100
Second	$125
Third	$225
Fourth	$300
Fifth	$350

D. Fine; civil penalty options. In daddition to the penalties imposed in § **188-19** of this chapter, the City Court may order a per on to perform one or more of the following

(1) Perform public service relating to the removal of litter or to the restoration of an area polluted by litter;

(2) Pay the person, or in the case of public property, the City, sustaining damages arising out of a violation of this chapter, plus the injured party's court costs and attorney's fees if action results in a civil proceeding

§ 188-20. Recovery of civil penalty.

[Added 7 2 1998]

A. Whenever the police and the park rangers of the City or Commissioner of Public Works or a designee determines that there has been a violation, or that there are reasonable grounds for belief that there has been a violation, of any provision of this chapter, they shall give notice of such violation or violations and an order to pay a civil penalty a pre cribed herein to the per on or per on re pon ible for uch violation or violations, who may be the owner, occupant, operator or agent of a dwelling as the case may require, in accordance with the requirements hereinafter set forth.
[Amended 9-4-2014 by Ord. No. 53]

B Such notice hall be deemed to be properly erved upon uch per on, owner, agent, occupant or operator if a copy is served upon such person, owner, agent, occupant or operator personally; or if a copy thereof is

sent by certified mail, return receipt requested, to the last known address of such person, or if a copy is po ted in a con picuou place in the building affected by the notice and a copy of aid notice i mailed by certified mail, return receipt requested, on the same day as it is posted to the person, owner, agent, occupant or operator; or such other method of service authorized by the Civil Practice Law and Rules of the State of New York. Such notice shall inform the person to whom it is directed of his/her right to apply for a hearing a provided in thi ection

C. Following receipt of the notice of violation with notice of right to a hearing, the person responsible for such violation shall have 10 days from the date of the notice to request a hearing in the manner provided herein. In the event that said person fails to request said hearing as so provided, he/she shall be deemed to have waived his/her right to a hearing and to any further admini trative remedie , and the determination of police and the park rangers of the City, the Commissioner of Public Works or a designee shall be deemed final and conclusive.
[Amended 9-4-2014 by Ord. No. 53]

D Any per on affected by any notice of violation i ued in connection with the enforcement of any provi ion of this chapter or of any rule or regulations adopted pursuant thereto may request and shall be granted a hearing before a hearing officer to be appointed by the Mayor, provided that such person shall file, within 10 days of the date of the notice of violation, in the office of the Commissioner of Public Works, a written reque t for uch hearing, etting forth a brief tatement of the ground therefor, de ignating the per on and his/her address upon whom orders may be served and setting forth the reasons why such notice of violation should be modified or withdrawn, on a form as provided by the Commissioner of Public Works. If this request is filed within such ten-day period, no action to collect the civil penalty shall be taken while the hearing i pending

E. Upon receipt of a request for a hearing, the Commissioner of Public Works or a designee shall set a time and place for such hearing and shall give the applicant at least 10 days' written notice thereof. Such hearing shall commence not later than 30 days after the date on which the request was filed; however, hearings may be po tponed by the hearing officer beyond uch thirty day period for good and ufficient rea on At uch hearing, the applicant or his/her representative shall be given an opportunity to show cause why such notice of violation should be withdrawn. The applicant shall be entitled to be represented by legal counsel of his/her choosing at such hearing and to cross-examine all witnesses against him/her.

F After a hearing held in accordance with thi ection, and on con ideration of the evidence pre ented, the hearing officer shall sustain, modify or withdraw the notice. If the notice of violation is sustained or modified, such final determination shall be deemed a final order and shall be served on the parties. The hearing officer shall keep a written summary of testimony and a copy of every notice or order, records of appearance , finding of fact and final determination, and uch hearing hall be made and filed in the office of the Commissioner of Public Works. Such minutes shall be made available to any person requesting the same upon payment of a reasonable charge for copying, pursuant to law. A copy shall be furnished to the appellant upon request, free of charge.

G Any per on or party aggrieved by an order of the hearing officer may eek to have uch order reviewed by the Supreme Court in the manner prescribed by Article 78 of the Civil Practice Law and Rules.

H. The civil penalty assessed pursuant to the notice of violation, if no hearing is requested pursuant to this section, or as modified or sustained by the hearing officer if a hearing is requested and held, shall be recoverable in a civil action in court by the Corporation Coun el, together with co t and di bur ement When the Corporation Counsel obtains a judgment in an action under this section, in addition to the appropriate methods of enforcement for judgments established in the Civil Practice Law and Rules, such judgments for civil penalties shall constitute a lien against the affected property and shall be filed with the office of the City Comptroller within one year from the entry of judgment, and the total amount thereof shall be added to and become part of the next annual assessment roll for the affected property at the time and in the manner prescribed by the Charter of the City and subject to all the provisions thereof.

§ 188-21. Reward.

[Added 10-5-1989]
Where information furnished by an individual to the City has, in the opinion of the Mayor, resulted in a fine of civil penalty for unlawful littering or dumping in violation of § **188-2**, **188-3**, **188-4**, **188-5**, **188-7**, **188-8**, **188-9**, **188-11**, **188-12** or **188-18**, the Mayor shall be authorized to offer as a reward to said individual a sum equal to 25% of such fine or civil penalty.

§ 188-22. Abatement of litter.

[Added 10-5-1989]
If the Director of Code Enforcement shall find litter on private property or sidewalks as prohibited by §§ **188-13** and **188-14** and if the owner or person in control has failed to dispose of the litter after notice as set forth in § **188-15** or if such notice cannot be made with due diligence, the Director of Code Enforcement shall promptly cause such litter to be removed and may enter upon private property if necessary for this purpose. Such removal may be done by the City or by a private contractor under the supervision of the Director of Code Enforcement. The reasonable costs incurred for the removal, whether done by City employees or by a private contractor, shall be charged to the owner of the private property described in § **188-13** or **188-14**, and the amount thereof shall be levied in the same manner as a tax against the property or may be collected by summary proceeding in a court of competent jurisdiction.

§ 188-23. Nuisance abatement.

[Added 9-4-2014 by Ord. No. 53]
Violations of any provision of this chapter shall also be considered a violation of Chapter **205**, Nuisances, Article **III**, Mayor's Powers; Assignment of Points for Offences, §§ **205-17** through **205-28**, and shall be documented and enforced in accordance with the requirements of Chapter **205**.

Fund: General General Services - Sanitation A8160

City of Troy - Budget for 2018

Expenditures Summary

MINOR CODE	MINOR DESCRIPTION	FY2016 ENCUMBRANCE	FY2017 BUDGET	--- FY2017 ENCUMBRANCES --- FIRST 6 MONTHS	EST. LAST 6 MONTHS	CITY MAYOR REC. 2018	CITY COUNCIL ADOPTED. 2018
	Code 1 :	$1,101,375.21	$1,265,360.00	$561,044.31	$704,315.69	$1,316,348.00	$1,316,348.00
	Code 3 :	$761.92	$1,499.00	$804.43	$694.57	$500.00	$500.00
	Code 4 :	$1,210,395.94	$1,255,000.00	$470,859.74	$784,140.26	$1,108,000.00	$1,108,000.00
	Code 8 :	$716,186.38	$751,281.00	$297,330.56	$453,950.44	$881,547.00	$881,547.00
	Subtotals for Major Code 8160 :	$3,028,719.45	$3,273,140.00	$1,330,039.04	$1,943,100.96	$3,306,395.00	$3,306,395.00

Commentary:

THE FUNCTION OF THE BUREAU OF SANITATION IS TO COLLECT AND TO DISPOSE OF ALL SOLID WASTES AND RECYCLED MATERIALS COLLECTED FROM THE CITY RESIDENCES AND BUSINESSES IN A SAFE, EFFICIENT AND SANITARY MANNER.

Fund: General General Services - Sanitation A8160

City of Troy - Budget for 2018

Expenditures

ITEM	PROJECT	MINOR	DESCRIPTION	PRIOR YEAR ENCUMBRANCE	CURRENT BUDGET	--- CURRENT ENCUMBRANCES --- FIRST 6 MONTHS	EST. LAST 6 MONTHS	CITY MAYOR REC. 2018	CITY COUNCIL ADOPTED 2018
			Code 1:						
101			SALARIES - PERMANENT	$1,029,025.11	$1,223,490.00	$552,877.60	$670,612.40	$1,280,828.00	$1,280,828.00
103			REGULAR OVERTIME	$36,379.09	$12,170.00	$8,166.71	$4,003.29	$12,170.00	$12,170.00
104			COMP BUYOUTS	$15,766.09	$6,000.00	$0.00	$6,000.00	$0.00	$0.00
110			LONGEVITY	$19,900.00	$23,700.00	$0.00	$23,700.00	$23,350.00	$23,350.00
113			OUT OF GRADE PAY	$304.92	$0.00	$0.00	$0.00	$0.00	$0.00
			Subtotals for Code 1 :	**$1,101,375.21**	**$1,265,360.00**	**$561,044.31**	**$704,315.69**	**$1,316,348.00**	**$1,316,348.00**
			Code 3:						
303			OTHER MATL'S & SUPPLIES	$761.92	$1,499.00	$804.43	$694.57	$500.00	$500.00
			Subtotals for Code 3 :	**$761.92**	**$1,499.00**	**$804.43**	**$694.57**	**$500.00**	**$500.00**
			Code 4:						
405	0076		REFUSE TIPPING FEE	$1,203,595.94	$1,220,000.00	$466,516.39	$753,483.61	$1,098,000.00	$1,098,000.00
409	0084		CONSLT FEES- MANDATED LANDFILL	$6,800.00	$35,000.00	$4,343.35	$30,656.65	$10,000.00	$10,000.00
			Subtotals for Code 4 :	**$1,210,395.94**	**$1,255,000.00**	**$470,859.74**	**$784,140.26**	**$1,108,000.00**	**$1,108,000.00**
			Code 8:						
804			PENSION & RETIREMENT	$211,314.11	$251,078.00	$60,622.00	$190,456.00	$222,725.00	$222,725.00
805			HEALTH CARE	$381,288.96	$384,722.00	$186,609.93	$198,112.07	$535,204.00	$535,204.00
805	0016		DENTAL	$18,148.11	$18,681.00	$9,184.73	$9,496.27	$22,918.00	$22,918.00
806			SOCIAL SECURITY	$80,888.89	$96,800.00	$40,913.90	$55,886.10	$100,700.00	$100,700.00
809			WORKER'S COMPENSATION	$24,546.31	$0.00	$0.00	$0.00	$0.00	$0.00
			Subtotals for Code 8 :	**$716,186.38**	**$751,281.00**	**$297,330.56**	**$453,950.44**	**$881,547.00**	**$881,547.00**

Economics of Waste Management and Land Cleanup

The EPA produces analyses that are vital to understanding economic issues surrounding the management of hazardous and municipal solid waste. Many of these analyses relate to the 1976 Resource Conservation and Recovery Act (RCRA) and subsequent amendments under which the management of both solid and hazardous waste is regulated.

The economics of contaminated site cleanup and land reuse are another important focus of EPA analyses. Sites may be contaminated by inappropriate waste management or by mistakes or carelessness in manufacturing or transportation processes. The primary risks posed by such sites are to human health and the environment. Many of the most contaminated sites are regulated by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA, also known as "Superfund"). The potential for contamination and the liability provisions of CERCLA are associated with persistent problems with vacant or underused land. This is addressed by The Brownfields Law of 2002, more formally known as The Small Business Liability Relief and Brownfields Revitalization Act. The Act defines a brownfield site as real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfield sites also include sites contaminated by petroleum or petroleum products, controlled substances, and mine-scarred lands.

Featured Resource

EPA's Land Handbook

Hazardous Waste

RCRA defines waste as hazardous if it appears on a list of specific hazardous wastes or if it exhibits at least one of the following four characteristics: 1) ignitability, 2) corrosivity, 3) reactivity, or 4) toxicity (for more information visit EPA's hazardous waste site). Economic studies focus on understanding how to reduce the volume of hazardous waste, how to encourage reuse of materials in production processes, the negative externalities associated with hazardous waste

disposal, environmental justice, and compliance issues. Economic studies also focus on which economic incentive policies are best to accomplish waste reduction, disposal, and equity goals.

Related Links

- Wastes
- Superfund
- Brownfields and Land Revitalization
- 25 Years of RCRA: Building on Our Past to Protect Our Future (PDF)
- National Brownfields Associations EXIT - nonprofit dedicated to stimulating responsible redevelopment of brownfields
- Resources for the Future EXIT - contains publications Waste Management and Site Cleanup

Municipal Solid Waste

Municipal solid waste (MSW), otherwise known as "garbage" or "trash," consists largely of waste discarded by households, businesses, and institutions. Economic studies focus on determining appropriate policies for MSW management, as well as measuring the negative external effects of MSW disposal, potential siting difficulties, and so on. The collection of MSW can be priced according to two different policies: traditional regulatory instruments (flat fees and local tax receipt-funded collection programs), and market incentives policies. Flat fees and local tax receipt-funded collection programs provide little incentive to reduce waste as the waste generator faces no extra costs in producing more waste each month. Approaches that include economic incentives increase unit costs and monetary rewards for reducing waste generation, and increasing composting and recycling. Examples of incentive structures include volume-based user charges, subsidies for recycling, and product charges that include the eventual costs of disposal. Economic studies that focus on the negative external effects of solid waste disposal have examined host community payments and hedonic pricing effects (for more information please see the Economic Incentives page). Economic analyses are also conducted to better understand the process and justice issues surrounding placement of recycling, composting, and other municipal solid waste facilities.

Contaminated Land

The cleanup and reuse of contaminated land is a source of social and economic concern. The spillage or release of hazardous substances into the environment can have serious economic consequences in terms of human health, damage to natural ecosystems that provide valuable benefits to society, and business operations within the contaminated area. CERCLA assigns liability to responsible parties for the cost of cleaning up contaminated sites. CERCLA states that responsible parties must be held financially liable for restoration efforts and damages to the public. Assigned liability is meant to encourage producers to safely manage hazardous substances such that it is to their financial advantage to do so. EPA's

Handbook on the Benefits, Costs, and Impacts of Land Cleanup and Reuse (EPA's Land Handbook) summarizes the theoretical and empirical literature addressing benefit-cost and impact assessment of the cleanup and reuse of contaminated land. A target of economic research by EPA has been the magnitude of negative externalities, or unintended consequences, associated with contaminated sites. One way to measure such externalities is to examine nearby property values. Such hedonic studies have made headway in measuring the effects of cleanup by examining changes in house prices. Another approach to measuring the benefits of cleanup is to conduct a stated preference survey, whereby survey participants are directly asked their Willingness-to-Pay dollar value to avoid damages from a contamination event. A final method is risk assessment based. These and other methods are explained and discussed in EPA's Land Handbook.

Brownfields

The liability provisions in CERCLA likely contributed to a growing problem of under- or un-used contaminated or potentially contaminated land. EPA administers grants to aid in financing assessment, cleanup, and other activities at such sites. EPA has considered issues surrounding the benefits of addressing underuse of brownfields and has worked to develop approaches for measuring such benefits. Benefits include improving the efficiency of property markets, as well as reducing future health and ecosystem risks from hazardous substances. Benefit categories and assessment approaches are discussed in EPA's Land Handbook.

Related References

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LAST UPDATED ON FEBRUARY 4, 2018

FY2004 OSWER Innovation Pilot Results Fact Sheet

Design for Disassembly in the Built Environment

The Environmental Protection Agency's Office of Solid Waste and Emergency Response initiated a series of innovative pilot projects to test ideas and strategies for improved environmental and public health results. This series of fact sheets highlights the innovative approaches, results, and environmental and economic benefits from the pilot projects that may be replicated across various sectors, industries, communities, and regions.

PROJECT DESCRIPTION/INNOVATION

EPA awarded an Innovation grant to the Community Housing Resource Center (CHRC) to extend the design for disassembly (DfD) concept to the construction of residential housing. If properly applied, a DfD building vastly reduces waste at the end of life and even prolongs the life of a building by allowing for changes. Though the DfD concept had been used in commercial building applications where adaptable and movable space is preferred, this concept was completely new to residential homes. The project sought to: formulate innovative DfD principles, design and build a case study house, document research and results, and promote the incorporation of these principles into future housing design.

BACKGROUND

In 2002, the U.S. Geological Survey estimated that 60 percent of all materials flow in the U.S. economy (excluding food and fuel) is consumed by the construction industry. Preliminary estimates from the EPA in 2003 showed that 91 percent of all construction-related waste produced annually in the U.S. was a result of renovations and demolitions, representing as much as 30 percent of all waste produced in the U.S. Of the total building-related waste generated, EPA estimated that only 40 percent was reused, recycled, or sent to waste-to-energy facilities, while the remaining 60 percent was sent to landfills.

In *Toward a New Metropolis: The Opportunity to Rebuild America*, a discussion paper prepared for The Brookings Institution Metropolitan Policy Program in 2004, it was estimated that the total built space in this country will grow from 296 billion square feet in 2000 to 427 billion square feet in 2030. Of this growth, 82 billion square feet of building will come from the replacement of existing building space and 131 billion will be new construction, totaling 213 billion square feet of new built space.

This estimate means that 27 percent of existing buildings in 2000 will be replaced by 2030, and that more than 50 percent of buildings in 2030 will have been built since 2000. Instead of construction materials ending up as waste once these building outlive their usefulness, DfD can be incorporated to recover them from new construction, future renovations and removals.

Project Highlights

- Building an average single-family home generates between 10,000-25,000 pounds of construction and demolition debris. Yet, fewer than eight 30-gallon garbage bags were filled with debris during the yearlong construction of the three bedroom, 2.5 bath, 3,000 square foot DfD model house.
- This case study led to the development of the best practices toolkit for DfD in residential construction, *Design for Disassembly in the Built Environment: A Guide for Closed-Loop Design and Building.*
- The pilot project served as a learning tool for testing the viability of DfD in the market, both by working with a traditional construction company and by selling the home on the open real estate market.
- Based on the pilot's success, EPA granted the Community Housing Resource Center $100,000 for an additional DfD home.

If residential housing designed from 2000 to 2050 allows for recovery of just 25 percent of construction debris, the resulting materials would be enough for nearly two-thirds of the housing units built during the following 50 years.

PROJECT SUMMARY

In 2004, the Community Housing Resource Center (CHRC), working in conjunction with the Hamer Center for Community Design Assistance at Pennsylvania State University and EPA Region 4, assembled a group of industry experts for a two-day design meeting in Atlanta, Georgia to develop a design plan for the case study home based on DfD principles. The meeting led to the development of a model for residential DfD construction projects called the "Anywhere House."

Prior to finalizing the design plan, a project site in Atlanta was selected for the DfD case study home—an undeveloped lot located in a dense urban setting within the historic Ma

Luther King, Jr. District. The nearby King Memorial, shops and restaurants added to the sustainability of the project as a viable home site, and created the potential for a pedestrian friendly urban lifestyle.

Based on the Anywhere House model, construction of the two-story, 3,000 square foot DfD residential home began in spring 2006 and was completed in June 2006. The pilot documented all research, design, and case study results. In addition, the project team created educational materials promoting the green approach for residential building design and conducted outreach that included discussions with representatives from the American Institute of Architects' Committee on the Environment, the Used Building Materials Association, and the U.S. Green Building Council.

RESULTS

The Pilot formulated design for disassembly (DfD) principles to design and build the first known residential DfD case study home, demonstrating that residential homes can be designed both for increased longevity and for future disassembly and building material reuse. Though DfD was a new concept in residential housing, the model DfD home was constructed with current building materials and using conventional building methods. Choosing to work within accepted trade practices and with convenient materials allowed the pilot case study method to be easily replicated and spread throughout the industry without calling for large-scale changes in residential construction methods.

The case study home featured DfD elements such as repositionable interior walls, which can be removed and relocated without creating any waste or compromising structural integrity; and a disentangled Heating, Ventilation and Air Conditioning (HVAC) system, in which the HVAC system is split into two smaller pumps for heating and air conditioning, one for each floor. This HVAC approach reduces the size of the units and the necessary ductwork, and eliminates the typical entanglement of ducts in the structural core of the second floor, where it would be sealed in by drywall finishes or the sub-floor. This design means that interior wall modifications are less invasive and more easily completed.

The home also included DfD features that focused on the use of green building materials, such as structural insulated panel (SIP) walls made from agricultural fiber that provide a renewable framing and insulating alternative to foam core and wall-to-wall bamboo flooring. Bamboo is not only less expensive and more resilient than typical wood flooring, but it also takes only a few years to reach maturity and can be harvested again and again from the same plant. In addition, the bamboo flooring was installed before the interior walls, which means the floors will not need to be re-patched when walls are moved.

Innovation Pilot Partners

Lead: Community Housing Resource Center

Sponsor: U.S. EPA Region 4

Other Partners:

- Center for Maximum Potential Building Systems
- Design AVEnues
- EHDD Architects
- Hamer Center for Community Design at Pennsylvania State University
- Georgia Department of Natural Resources

Additional Information

OSWER Innovation Projects:
www.epa.gov/oswer/iwg/pilots/

OSWER Innovation Deconstruction Success Story:
www.epa.gov/oswer/iwg/

EPA Resource Conservation Challenge – Environmentally Friendly Design:
www.epa.gov/osw/rcc/resources/elements/design.htm

EPA Region 4 Construction and Demolition Debris:
www.epa.gov/region4/waste/rcra/cdhome.htm

City of Mesa, AZ Household Hazardous Waste Collection Events: www.mesaaz.gov/waste/HHW.aspx

Lifecycle Building Challenge – Resources:
www.lifecyclebuilding.org/resources.php

2010 UPDATE

The Design for Deconstruction principles developed through the DfD pilot have had far-reaching impacts—becoming widely recognized templates for architects, engineers, academia, and other stakeholders. These principles were used to formulate the design of the Chartwell School in Seaside, California, a project that incorporated deconstruction methods such as modular framing and visible utility networks. The momentum for DfD practices created by this pilot also led to creation of the Life Cycle Building Challenge, an annual competition for innovative projects that conserve construction and demolition materials and reduce greenhouse gas emissions by designing buildings for adaptability and disassembly. In addition, the Center for High Performance Schools in California, which oversees the nation's first green building rating program for K-12 schools, added DfD criteria to its rating system based on both the DfD pilot and the Chartwell School project.

Wm. Patrick Madden
Mayor

Monica Kurzejeski
Deputy Mayor

Andrew J. Donovan, P.E.
City Engineer

Bureau of Code Enforcement
Bureau of Engineering

DEMOLITION PERMIT REQUIREMENTS

- Design drawings and/or performance specifications indicating the project extents and method of demolition of the existing structure, or portion thereof, as well as any shoring/support required for any remaining portion of the existing structure, if necessary. In lieu of drawings and specifications, the Bureau of Code Enforcement, at its discretion, may accept a written narrative and photographs adequately describing the proposed demolition extents and procedure. A project schedule with clearly defined dates for completion of asbestos abatement and completion of demolition. Based on the proposed project scope, the City of Troy reserves the right to request that the plans and/or specifications be certified by an engineer or architect licensed in the State of New York.

- A proposal of post-demolition plans/use of property, as applicable. See "Post-Demolition Plan, Statement of Agreement".

- An asbestos survey performed by a company possessing a valid asbestos handling license, per NYCRR 56-5.

  Note: In the event that asbestos-containing materials are determined to be present, all asbestos abatement work requires a separate Work Permit from the City of Troy Bureau of Code Enforcement.

- A certification of completion, of asbestos abatement performed by a company possessing a valid asbestos handling license, per NYCRR 56-5, if asbestos abatement work is required. All asbestos abatement work shall be performed in accordance with the requirements of NYCRR 56-11.4. Prior to the disposal of asbestos-containing materials, the contractor shall furnish the Bureau of Code Enforcement with documentation from an approved disposal facility that will be accepting the material.

- Certification, by the utility provider, of termination of electrical service to the property.

- Certification, by the utility provider, of termination of natural gas service to the property.

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Troy, New York 12180
518-687-1140

- Certification, by the Rensselaer County Health Department, that no infestation exists at the property. Phone 518.270.2670

- Verification, from the City of Troy Department of Public Utilities, of shut off of water service to the property and plugging of the sewer line from the property. See "Request for Termination of Water/Sewer" form.

- A permit, issued by the City of Troy Department of Public Utilities, for the temporary use of a City-owned fire hydrant.

- Certificates of Insurance from the proposed air-monitoring, abatement and demolition contractors, to include;
    - General Liability ($1,000,000 each occurrence/$2,000,000 aggregate)
      To be listed as additionally insured,
      City of Troy, New York
      433 River Street, Suite 5001
      Troy, New York 12180
    - NYS Workers' Compensation

- Payment of applicable fees.

FEES FOR DEMOLITION PERMITS

100 TO 500 SQUARE FEET	$75.00
501 TO 1000 SQUARE FEET	$150.00
1001 TO 2000 SQAURE FEET	$300.00
2001 TO 3000 SQUARE FEET	$425.00
3001 SQUARE FEET AND UP	$750.00

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DEMOLITION PROCEDURE

1. Upon the Bureau of Code Enforcement acceptance of the Applicant's Demolition Permit application and the payment of the applicable fees, the building or structure will be posted by a Code Enforcement official.

2. The purpose of the posting is to allow for a public comment period.

3. The posting will be for a period of not less than 14 days, at which time any public concerns may be addressed

4. Following the posting period, the Bureau of Code Enforcement will contact the Applicant for the issuance of the Demolition Permit.

5. Prior to the commencement of the demolition the Applicant shall schedule a site meeting with the Bureau of Code Enforcement in order to review the proposed demolition procedure and ensure that all safety measures have been satisfactorily addressed;
   Proper placement of air-monitoring equipment, proper erection of barricades, removal of glass, electric service, phone wires, cable wires, water meter, gas meter, water and gas shut off, sewer plugged and cellar floor broken up.

6. Upon completion of the demolition work, the Bureau of Code Enforcement is to be notified and an inspection shall be scheduled to ensure that;
   The foundation has been removed to a depth of 24 inches below grade.
   All debris and organic material has been removed from site.

7. Following the completion of this inspection, the Applicant shall be permitted to grade and seed the site. The Applicant shall use only clean fill for backfilling of the site.

8. If an approved building or structure is to be constructed on the site, the Applicant shall obtain a separate Work Permit from the Bureau of Code Enforcement for the new building or structure, prior to commencement of the construction.

For further instructions please contact the Bureau of Code Enforcement at 518-279-7180.

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518-687-1140

POST DEMOLITION PLAN STATEMENT OF AGREEMENT MADE AS A CONDITION FOR RECEIVING A DEMOLITION PERMIT IN THE CITY OF TROY, NEW YORK. (WHEN THERE ARE NO PLANS FOR THE AFTER DEMOLITION)

Owner of Property _____

Address of Property _____

Description of Property _____

Applicant shall submit a SITE PLAN for the site as applicant expects the lot to appear after the structure(s) are demolished. In addition to the site plan, applicant must furnish photographs (at least four) of the existing conditions at the site. (Preferably of the four corners of the property)

The site plan shall address such issues as controlling erosion and drainage from the lot, presenting a reasonable appearance for the lot, discouraging illegal dumping and parking on the lot, etc.

Every site plan shall be filed with the Bureau of Code Enforcement. After submission of the site plan, Code Enforcement staff shall review the site plan, as submitted, to determine if the submitted plan identifies and mitigates any adverse effects the site, as it would exist after the demolition, would have on the adjoining property owners and surrounding neighborhood.

Included with the site plan (to be submitted by the applicant), the following checklist of items MUST BE addressed by the applicant.

Anticipated start date, for demolition work _____ Completion date _____

All Utilities disconnected? ____YES ____NO

Gas service terminated? ____ inside residence ____in street

Water terminated on _____ location _____

Sewer terminated on _____ location _____

Electric terminated on _____

Cable TV, telephone etc. terminated on _____

Any street, alley or sidewalk patches MUST match adjacent areas ____N/A ____To Be Completed

Foundation to be removed 24” below grade? ____YES

Type of backfill to be used? _____

Combustible debris to be removed from site? ____YES

Topsoil to cover entire lot for a depth of _____ inches. Topsoil source _____

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Proposed completion dates, topsoil? _____ seeding/fertilizing? _____

Method of fertilizing and seeding? _____

Existing trees and/or shrubs, to remain? ____YES to be removed? ____YES ____ N/A

Installation of new fencing? ____YES ____NO

Encroachment(s) in the City right-of-way; stairs, ramps, etc.? ____YES ____NO

If YES, who will remove and patch to match adjacent areas? _____

Installation of new sidewalks and /or curbing proposed? ____YES ____NO

Will the lot be used for parking purposes? ____YES ____NO

Note: Approval of the City of Troy Planning Commission is required.

Other structures affected by Work; common/party walls, site retaining wall, etc.? ____YES ____NO

The applicant MUST fill out the check list of appropriate site plan items outlined on this form. Once submitted, Code Enforcement personnel will review all of the information submitted and determine if the applicant meets all of the requirements of the Pre-demolition plans review.

In the course of conducting this review (Planning Department staff) shall give mail notice to the adjoining property owners and POST NOTICES ON THE SITE.

The mail notice is designed to give the adjoining property owners a fair opportunity to identify problems that they think will arise because the structure(s) will no longer exist on the site.

I, _____, hereby agree to conform to all site plan items outlined on the site plan and attached checklist form submitted (by me) and approved by the City of Troy Bureau of Code Enforcement.

Signed By: _____ Date:_____

IF THE APPLICANT DOES NOT ACCEPT THE DETERMINATION OF THE DIRECTOR OF THE BUREAU OF CODE ENFORCEMENT (OR HIS DESIGNEE), THEN THE APPLICANT SHALL HAVE THE RIGHT TO HAVE HIS SITE PLAN REVIEWED BY THE CITY PLANNING COMMISION. Every person, firm or corporation who shall fail to follow a plan approved pursuant to this section shall be guilty of a violation.

SITE PLAN REVIEWED AND APPROVED BY CODE ENFORCEMENT STAFF ON _____

Approved by _____ Date :_____

City Hall, 433 River Street, Suite 5001
Troy, New York 12180
518-687-1140

INSURANCE REQUIREMENTS

Liability, Workers Compensation & Disability Packet (as of Nov 29, 2005)
The City of Troy, New York

Please read this entire form and determine which forms apply to you. Contractors must provide proof of general liability coverage, workers compensation coverage and disability benefits coverage. If you are a homeowner please see the special section below, which may apply to you.

These properly completed forms must be ready at the time of permit issuance. If you do not have all required forms ready at the time of permit issuance please contact Nora Decker at 270-4646 and provide her with all required forms so she can enter them into our Cityview permit issuance software. Please allow the necessary time for the forms to be entered into the computer system.

General Liability Coverage

Required form -Standard Liability Accord Form

Note: In the box entitled 'Description of Operations/Locations/Vehicles…'
it must state that "The City of Troy, NY is additionally insured".
If the City of Troy, NY is certificate holder, the box may state "The Certificate Holder is additionally insured".
Minimum coverage is $1,000,000.00 (General)

Workman's Compensation Forms (Accord Forms are not acceptable proof of WC coverage)

Workers Compensation Local District Office Location:

100 Broadway- Menands
Albany, NY 12241
(866) 750-5157
(518)473-9166fax

Must provide one of the following forms:

-WC/DB-100 In State, Entities with no employees.

-WC/DB-101 Out of State or Foreign, exempt from NYS coverage requirements.

Note: Affidavits must be stamped as received by the NYS Workers' Compensation Board. Forms WC/DB-100 and WC/DB-101 are available on the Board's website, www.wcb.state.ny.us, under the heading "Common Forms Online". You may also call the Albany district at (518) 486-3349.

-C105.2 Certificate of Workers' Compensation Insurance.

Note: The State Insurance Fund provides it's own version of this form, the U-26.3.

-SI-12 Certificate of Workers' Compensation Self-Insurance (the business calls the Board's Self Insurance Office at 518-402-0247), or GSI-105.2 Certificate of Participation in Worker's Compensation Group Self-Insurance (the business' Group Self-Insurance Administrator will send this form to the government entity upon request).

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CITY OF TROY
APPLICATION FOR DEMOLITION WORK PERMIT

Location of Work:		
Property Owner:	Address:	Phone:
Contractor:	Address:	Phone:

Checklist	Length _____ x Width _____ = Square Footage _____
☐ Asbestos Survey ☐ Asbestos Abatement (if required) ☐ Electric Shut-off ☐ Gas Shut-off ☐ Water Shut-off ☐ Rodent Infestation Inspection ☐ Post Demolition Agreement ☐ Contractors Insurance forms	Residential ☐ Yes ☐ No Number of Families _____ Commercial ☐ Yes ☐ No Is building declared an emergency? ☐ Yes ☐ No

Demolition Cost: _____

I hereby make application for issuance of a permit for work described above. I agree that no person will be employed without providing workers compensation and disability benefits law coverage, as required by state law, and that all applicable ordinances of the City shall be complied with. I declare. Subject to penalty of perjury that statements made herein are true and correct to the best of my knowledge.

☐ OWNER APPLICANT'S SIGNATURE _____

☐CONTRACTOR APPLICANT'S NAME (PRINT) _____

☐ OTHER APPLICANT'S EMAIL _____

DATE _____

City Hall, 433 River Street, Suite 5001
Troy, New York 12180
518-687-1140

The City of Troy No. _____

Department of Public Utilities
25 Water Plant Road
Troy, New York 12182
(518)237-0319
FAX: (518)233-7038

REQUEST FOR

TERMINATION OF WATER/SEWER

Date _____

Location _____ Owner_____

Owner's Phone: _____

Demolition Requested By: _____ Owner _____ Contractor

Contractor: _____Phone_____

Contractor Address _____
Street City State Zip

Demolition Scheduled: _____Immediately _____Other _____

_____
Applicant (Signature)

_____
(Print Name)

Public Utilities Use Only

Water Shut Off _____
(date)

Sewer Plugged _____
(date)

Service Terminated By _____
(date)

Approved for Demolition By _____
(date)

(Following the approval, please fax a copy of this request to Bureau of Code Enforcement: Fax# 270-4642)

City Hall, 433 River Street, Suite 5001
Troy, New York 12180
518-687-1140

CITY OF TROY DEPARTMENT OF PUBLIC UTILITIES POLICY
CONTRACTOR OR INDIVIDUAL USE OF FIRE HYDRANT

It is the City of Troy, Department of Public Utilities policy to limit and restrict the use of fire hydrants in the distribution system.

The only un-permitted use of a fire hydrant in the City of Troy, Department of Public Utilities distribution system is for the purpose of providing fire protection in the case of an emergency by a recognized volunteer or paid fire department.

Under certain circumstances, the City of Troy, Department of Public Utilities may permit an individual or a company to use the fire hydrant for uses other than fire protection.

The permit will be issued only after review by the City of Troy, Department of Public Utilities or their designated respresentative. There is a one hundred dollar ($100.00) permit fee.

Rules for using a fire hydrant with a permit:

1. The individual using the hydrant must be instructed in the proper use of a fire hydrant.
2. The hydrant connection must be fitted with an approved shut off valve and a backflow prevention device if required by the department.
3. The hydrant must be closed and drained at the end of each work period.
4. The hydrant must not be allowed to freeze in cold weather.
5. The individual using the hydrant must agree to accept all responsibility for the damage to the hydrant or main including repair or replacement of either.
6. The City of Troy, Department of Public Utilities requires a deposit of $1,000.00 dollars for the duration of the time the hydrant is in use.
7. The City of Troy, Department of Public Utilities may require metering and reimbursement of water used for special permitted uses of a fire hydrant.

NAME: _____

COMPANY: _____

ADDRESS: _____

PHONE: _____

LOCATION OF HYDRANT TO BE USED: _____

PERMIT FEE PAID, DEPOSIT: _____ _____

SIGNATURE, PRINT, SIGN AND DATE:_____

OFFICIAL APPROVAL BY:_____

City of Troy, Department of Public Utilities 25 Water Plant Rd, Troy, New York 12182
Phone (518) 237-0241 Fax (518)237-0778

City Hall, 433 River Street, Suite 5001
Troy, New York 12180
518-687-1140

TOWN OF BETHLEHEM
APPLICATION FOR COMMERCIAL WASTE COLLECTOR PERMIT

Superintendent of Highways
Town of Bethlehem
74 Elm Avenue East
Selkirk, NY 12158

PHONE (518) 439-4955x1598
FAX (518) 767-9245

Application is hereby made of the Superintendent of Highways for the issuance of a Commercial Waste Collector Permit pursuant to Chapter 97 of the Bethlehem Town Code which requires any person, firm or corporation be permitted to engage in the business of collecting and transporting solid waste in the Town of Bethlehem. As a condition for obtaining this permit, all commercial waste collectors must file a recycling plan setting forth the procedures, means and methods by which they will handle the recyclable materials. The plan must also contain details of the processing of the recyclables collected. This plan must be approved by the Superintendent of Highways prior to the issuance of said permit.

Applicant's Name: _____

Address: _____

_____

Phone: _____(Day) _____(Evening)

Names and addresses of each officer and/or director, if a corporation, or of each partner, if a partnership:

_____

_____

_____

_____

_____

_____

_____

TYPE OF SERVICE PROVIDED

__ COMMERCIAL __ RESIDENTIAL __ BOTH

In making this application, the applicant agrees that if granted this permit, their respective company will conduct the activity or business pursuant to the regulation set forth in Chapter 97 of the Bethlehem Town Code, duly adopted by the Town Board of the Town of Bethlehem on June 13, 1990, and any amendments thereto, and upon the applicant's failure to do so, such permit may be revoked forthwith.

The applicant also acknowledges the requirement that each hauler must submit quarterly recycling and refuse reports (using the Town forms, enclosed) stating the amount of refuse and recyclables collected and the locations of their disposal. As a mandatory verification requirement of this permit, current and past report information may be confirmed by the Town's Recycling and Sanitation Department directly with the recycling or waste disposal destination facility at any time as deemed necessary by the Town. By signing below, applicant authorizes all destination facilities listed on recycling and refuse reports to disclose any scale ticket or other information as requested by the Town of Bethlehem.

Further, the applicant agrees to pay all fees assessed for the use of the solid waste facilities in the Town of Bethlehem. In the event that the applicant fails to make payments, the applicant agrees that any cost incurred by the Town in enforcing its rights, including but not limited to interest, penalties, court costs and reasonable attorney fees and expenses, shall be assessed to and collected from the applicant.

DATED _____ APPLICANT(s) _____
Signature

_____
Signature

Sworn to before me
this_____day of_____, 2017.

_____
NOTARY PUBLIC

Submit Form and Payment to: Town of Bethlehem
Highway Department
Application Due By 74 Elm Avenue East
January 27, 2017 Selkirk, NY 12158

OFFICIAL USE ONLY

Date application received _____

Fee and Recycling Plan Enclosed _____ _____
yes no

PERMIT # _____ Date Issued _____

Revised 1/8/17

Brent Meredith
Highway Superintendent

Dan Rain
Recycling Coordinator

TOWN OF BETHLEHEM

Albany County - New York
RECYCLING OFFICE
74 ELM AVENUE EAST
SELKIRK, NEW YORK 12158
(518) 439-4955 x 1510
Fax: (518) 767-9245
Email: drain@townofbethlehem.org

TOWN OF BETHLEHEM
QUARTERLY RECYCLING AND REFUSE REPORT

COMPANY_____ **JANUARY, FEBRUARY, MARCH, 2017**

Due to requirements of the Town of Bethlehem and our planning unit, it is **MANDATORY** that each waste collector complete and submit this form to the Town Recycling Coordinator **by the 15th of the month** following the end of each quarter. Town may verify this report information with destination facility at any time. Failure to submit this report may result in a fine and/or revocation of your permit.

REFUSE_____**TOTAL TONS** **REFUSE TIPPING FACILITY(s)**_____

MATERIALS RECYCLED	**QUANTITY (IN TONS)**	**RECYCLING DESTINATION FACILITY**
SINGLE STREAM RECYCLING		
Glass Bottles		
Metal Cans		
Plastic Bottles		
COMMINGLED CONTAINERS		
Mixed Paper		
Corrugated Cardboard		
COMMINGLED PAPER & CARDBOARD		
Appliances		
Tires		
Food Waste		
Other (_____)		
TOTAL RECYCLING		

_____ _____
SIGNATURE OF WASTE HAULER **DATE**

John Clarkson
Town Supervisor

Dan Rain
Recycling Coordinator

TOWN OF BETHLEHEM

Albany County - New York
RECYCLING OFFICE
74 ELM AVENUE EAST
SELKIRK, NEW YORK 12158
(518) 439-4955 x 1510
Fax: (518) 767-9245
Email: drain@townofbethlehem.org

TOWN OF BETHLEHEM
QUARTERLY RECYCLING AND REFUSE REPORT

COMPANY_____ **APRIL, MAY, JUNE, 2017**

Due to requirements of the Town of Bethlehem and our planning unit, it is **MANDATORY** that each waste collector complete and submit this form to the Town Recycling Coordinator **by the 15th of the month** following the end of each quarter. Town may verify this report information with destination facility at any time. Failure to submit this report may result in a fine and/or revocation of your permit.

REFUSE_____**TOTAL TONS** **REFUSE TIPPING FACILITY(s)**_____

MATERIALS RECYCLED	QUANTITY (IN TONS)	RECYCLING DESTINATION FACILITY
SINGLE STREAM RECYCLING		
Glass Bottles		
Metal Cans		
Plastic Bottles		
COMMINGLED CONTAINERS		
Mixed Paper		
Corrugated Cardboard		
COMMINGLED PAPER & CARDBOARD		
Appliances		
Tires		
Food Waste		
Other (_____)		
TOTAL RECYCLING		

_____ _____
SIGNATURE OF WASTE HAULER **DATE**

John Clarkson
Town Supervisor

Dan Rain
Recycling Coordinator

TOWN OF BETHLEHEM

Albany County - New York
RECYCLING OFFICE
74 ELM AVENUE EAST
SELKIRK, NEW YORK 12158
(518) 439-4955 x 1510
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TOWN OF BETHLEHEM
QUARTERLY RECYCLING AND REFUSE REPORT

COMPANY_____ **JULY, AUGUST, SEPTEMBER 2017**

Due to requirements of the Town of Bethlehem and our planning unit, it is **MANDATORY** that each waste collector complete and submit this form to the Town Recycling Coordinator **by the 15th of the month** following the end of each quarter. Town may verify this report information with destination facility at any time. Failure to submit this report may result in a fine and/or revocation of your permit.

REFUSE_____**TOTAL TONS** **REFUSE TIPPING FACILITY(s)**_____

MATERIALS RECYCLED	QUANTITY (IN TONS)	RECYCLING DESTINATION FACILITY
SINGLE STREAM RECYCLING		
Glass Bottles		
Metal Cans		
Plastic Bottles		
COMMINGLED CONTAINERS		
Mixed Paper		
Corrugated Cardboard		
COMMINGLED PAPER & CARDBOARD		
Appliances		
Tires		
Food Waste		
Other (_____)		
TOTAL RECYCLING		

_____ _____
SIGNATURE OF WASTE HAULER **DATE**

John Clarkson
Town Supervisor

Dan Rain
Recycling Coordinator

TOWN OF BETHLEHEM

Albany County - New York
RECYCLING OFFICE
74 ELM AVENUE EAST
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TOWN OF BETHLEHEM
QUARTERLY RECYCLING AND REFUSE REPORT

COMPANY_____ OCTOBER, NOVEMBER, DECEMBER 2017

Due to requirements of the Town of Bethlehem and our planning unit, it is **MANDATORY** that each waste collector complete and submit this form to the Town Recycling Coordinator **by the 15th of the month** following the end of each quarter. Town may verify this report information with destination facility at any time. Failure to submit this report may result in a fine and/or revocation of your permit.

REFUSE_____TOTAL TONS REFUSE TIPPING FACILITY(s)_____

MATERIALS RECYCLED	QUANTITY (IN TONS)	RECYCLING DESTINATION FACILITY
SINGLE STREAM RECYCLING		
Glass Bottles		
Metal Cans		
Plastic Bottles		
COMMINGLED CONTAINERS		
Mixed Paper		
Corrugated Cardboard		
COMMINGLED PAPER & CARDBOARD		
Appliances		
Tires		
Food Waste		
Other (_____)		
TOTAL RECYCLING		

_____ _____
SIGNATURE OF WASTE HAULER **DATE**